A Clinical Lecture

ON

INSULAR SCLEROSIS AND HYSTERIA.

Delivered at the National Hospital for the Paralysed and Epileptic, Queen-square, on Nov. 10th, 1896,

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GENTLEMEN,—It need scarcely be said that to enter at all fully into the subject either of Insular (disseminated) Sclerosis or of Hysteria would require a good many lectures. My object to-day is to give you a sketch illustrative of a single point, viz.—the extraordinary liability of Insular Sclerosis to be diagnosed as Hysteria. In making a sketch of a landscape from nature the art largely consists in knowing what to leave out. In my sketch it will be understood, in like manner, that everything which is not essential to the particular object in view will necessarily be omitted.

Of the two patients present, one, aged forty-two years, I have the opportunity of showing by the courtesy of Dr. Hughlings Jackson; the other, aged twenty-eight years, is under my own care. The first is a married woman who, ten years ago, began to suffer from giddiness and complained of weakness in her legs, which has continued to the present time, and has been accompanied occasionally by pains. Four years ago she first noticed trembling and inability to hold things with her right hand, and two years ago the left arm became similarly affected. One year ago she began to have delay in micturition, and more recently incontinence of urine. She suffered also from double vision. During the last six months there has been some trembling of the hand and her articulation has been impaired. On admission to the hospital she appeared to be well nourished, and nothing wrong was found in the digestive, circulatory, or respiratory systems. Her mental state appeared to be normal. Her utterance was slow and inclined to be syllabic. There was diminution of power in the arms and great incoördination in voluntary movements. There was no marked wasting. She could not walk, and when lying was unable to raise the legs from the bed. The legs were stiff and spastic. The sensory system was unimpaired. Of the organic reflexes the act of swallowing was normal; there was complete loss of control over the bladder; the bowels were constipated. Of the superficial reflexes the abdominal and epigastric were absent, but the plantars were present. (I shall have something to say presently about the retention of the plantar reflex.) Of the deep reflexes those at the knees were exaggerated. There was no ankle clonus. There was very marked nystagmus. The vision of the right eye was $\frac{6}{9}$, Jaeger 12 (– 1); that of the left eye was $\frac{6}{6}$, Jaeger 7 (– 3). The optic discs were pale. The patient's present condition will be seen to correspond with this description, for which I am indebted to Dr. Harris, senior house physician. She may be taken as a typical example of insular sclerosis. She has slowly but uninterruptedly grown worse since her illness commenced, some ten years ago, and there is no record of a diagnosis of hysteria having been made in the earlier stages of her disease. If this be so it is a rare exception. Both in hospital and private practice we almost invariably find that a female patient presenting a characteristic picture of insular sclerosis has in the earlier part of her illness been considered, for longer or shorter periods, to be suffering only from hysteria.

Before proceeding to dwell in some detail on this point I will show you the other patient, a single woman aged twenty-eight years, who applied at this hospital in March, 1894, on account of a difficulty in walking from which she had suffered more or less for ten months. It appeared that in May, 1893, she began to complain of weakness of the left arm and leg. She dragged the leg a little, and it felt numbed, "like a log of wood." She had had some considerable mental trouble before this, and the symptoms were set down to "hysteria." This diagnosis appeared to be confirmed when, in the course of a month, the arm had recovered. Although her leg dragged a little she continued to walk until February, 1894. There had been a progressively increasing weakness, which at Christmas, 1893, had extended slightly to the right leg. On examination in the out-patient department the knee jerks were found to be very well marked on both sides. Ankle clonus was obtained readily on the left side at the first attempt, but on the second trial it could not be elicited. There was no sign of ankle clonus on the right side. There was no nystagmus and there had not been any double vision. On the other hand, micturition had been inclined to be precipitate. The patient was a well-grown, healthy-looking young woman. Some doubt was felt by my colleague in the out-patient department as to the diagnosis of this case, and she was sent to Finchley, to our convalescent home, to be under observation and treatment. In May it was noted that she walked much better. It was also remarked that she would get better one day and then worse again. On May 3rd ankle clonus was observed to be dennite, though not prolonged, on each side, and about equally well-marked in the two legs. At this time the plantar reflex was present on the right side, but doubtfully expressed on the left. Sensation was apparently normal to touch and pain. On May 31st it was noted that she walked much better—in fact, fairly well; but the left leg was considered rather weaker than the right. There was now an attempt at ankle clonus in the right leg and on the left side it was well marked. For the first time, too, some fine though definite nystagmus was noted in the left eye. In the right eye this was barely perceptible. At this date it was remarked that no plantar reflex was obtained, but the patient appeared to feel both touch and the prick of a pin well. She was discharged from Finchley, but continued to attend the out-patient department in Queen-square till October, 1894, when she was admitted into the hospital for five months, improving considerably during this time under treatment. She was discharged in Februa[illegible] 1895, and readmitted last August in the condition whic[illegible] now presents. The patient keeps her bed, but can walk alone for a very few minutes and then becomes exhausted. Her gait is very staggering and the act of walking occasions incontinence of urine. The left foot is slightly dragged. When recumbent she can just lift the left leg off the bed, the right being much stronger. The left arm is weaker than the right, but its movements are fairly good. Sensation appears to be normal and equal on both legs and arms. The patient can stand with feet together, the eyes being closed. She can thread a needle if given plenty of time, but is very clumsy and shows tremor in picking up a pin, especially with the left hand. This is also noted when she touches the forehead with her finger. There is incontinence both in regard to the bladder and rectum. The knee-jerks are greatly in excess and there is double ankle clonus. The plantar reflexes are present. There is marked horizontal nystagmus in each eye. Two years ago it appears that the sight of the right eye was dim for a time, but now she says that she can see perfectly, and in effect V = $\frac{6}{6}$ and Jaeger 1 with each eye. Notwithstanding this, when we examine the fundus oculi with the ophthalmoscope we find the optic discs pale, the right showing rather more pallor than the left. I shall presently have to advert to an important feature in the state of her visual fields.

I suppose it can hardly be doubted that both these patients are examples of organic disease and probably of insular sclerosis. Yet the last case was considered before her admission to be one of hysteria, and in hospital some doubt was at first felt as to the nature of her affection. This is evidenced by a note on the out-patient letter. The patient was first examined in March, 1894, and under the heading "Diagnosis" a note of interrogation appears. On May 31st, when the patient had been under observation for two or three months, the following note was made: "Diagnosis uncertain. Thought to be perhaps hysterical, but the definite ankle clonus and the observation of slight nystagmus rather suggest disseminated sclerosis."

I take it that we have all of us at various times given the name of hysteria to an early stage of insular sclerosis. One reason for the common fallacy in diagnosis appears to be that we have somehow failed to remember that insular sclerosis does not spring suddenly into existence in a typical form. Like most other chronic or sub-acute ailments it has to go through a budding period, during which the aspect presented differs much from that of the full-blown disease. Several years ago I expressed the opinion that "many symptoms which have come to be considered characteristic of hysteria will, if examined by the light of improved knowledge and experience, be relegated to disseminated sclerosis." In the case just shown you there are illustrations of this. The sudden loss of power in a limb, occurring after mental shock in an otherwise apparently healthy girl and passing off completely in a

month, is a symptom which is practically certain to be set down to hysteria. And so with the dimness of vision in one eye of temporary character, recovering without treatment; and, again, the dragging of a leg, which felt "numbed and like a log of wood." Whatever may be the case with regard to hysteria I have no hesitation in saying that these are as much symptoms of insular sclerosis as cough is of bronchitis or pain of peritonitis (of course, this is not to say that the symptoms are pathognomonic). I would therefore urge you, when you come across such symptoms in an apparently healthy young woman, to remember that they may possibly point to insular sclerosis. Whatever you think of them do not jump to the conclusion that they are any proof that the girl is only suffering from hysteria. Insular sclerosis must be studied in its infancy, so to speak. The full-grown disease is frequently not recognised, the infant disease practically never. In its infancy, according to my observation, the name given to insular sclerosis is "hysteria." This is not a hasty expression of opinion; it is founded upon observation of the sequels of numerous cases during the last twenty years. Some of these have been patients of my own, the progress of whose cases has taught me that I had been in error in originally regarding them as examples of hysteria. Let me refer in the briefest possible manner to some cases illustrating this point which have more or less recently come under my notice in private practice.

CASE 1.—A single woman at twenty-one years of age suffered from weakness in her legs and also in the left arm. After a few months the left hand recovered and then the right hand became weak, so that she could scarcely write for three months. Since then sometimes one and sometimes the other leg has dragged. Her case had been treated always as one of hysteria. When I saw her, four years after the commencement, examination showed nystagmoid movements of the eyes, inability to lift the knees or, except to a trifling degree, to extend the legs, incontinence of urine, grasp of the right hand very weak, that of the left a little stronger, spasticity of legs.

CASE 2.—A married woman aged forty years. For three and a half years she had been unable to walk properly, though at times this had very greatly improved. Six years ago she had diplopia for two months after a great shock. For the last six months she had been getting worse. When seen by me the gait was staggering and the knee-jerks were exaggerated. There was double ankle clonus. There was no manifest unsteadiness of the arms. The sight of the left eye was much better than that of the right. The right optic disc was distinctly pale, the left probably normal. Some weakness of the bladder. She had been treated as a case of hysteria.

CASE 3.—A single woman aged thirty-five years. Difficulty in walking had been observed for four years, and especially for two years, past. For a long time she could not retain urine, but that is now better. Her gait was staggering and stiff. Her knee-jerks were exaggerated and there was double ankle clonus. There was no tremor of the hands on voluntary movement. The first appearance of symptoms was after mental shock and physical fatigue. There was no nystagmus or articulatory difficulty. At times she has improved, but has never been able to run. Medical advisers, of whom she has seen three, all agreed that it was a nervous functional affection, that "it was merely a matter of time and she would recover." She has been told that she could "throw it off by her will." The right disc is paler than the left and sight of the left eye rather better than that of the right.

CASE 4.—A married woman aged thirty-nine years. For many years she had had attacks in which she "would feel that she could not walk." Five years ago she was very anæmic and lost power in her legs, but quite recovered under chalybeate treatment and walked up hills. Seven years ago she lost the use of one arm and saw double; she was in bed for three months, during which the diplopia continued. When seen by me there was nystagmus and marked tremor of the right hand on voluntary movement, so that she was obliged to carry a cup to the lips with both hands. She had been treated as a case of hysteria and had twice undergone Weir-Mitchell treatment. The physician by whom she was sent to me, however, doubted the correctness of this diagnosis, and I agreed with him that it was a case of organic disease. I thought it one of insular sclerosis. Some months later I found partial paralysis of the right external rectus muscle. The sight of the right eye was $\frac{6}{18}$, and that of the left $\frac{6}{12}$. There was some pallor of both optic discs, especially of the left.

CASE 5.—A married woman, whose present age is thirty-seven years, was seen by me in 1883, and she underwent Weir-Mitchell treatment with my consent on account of loss of power in her legs with transitory loss of feeling in the left arm, which had appeared to be of hysterical character. I lost sight of her and did not see her again for thirteen years. Her condition was then as follows. She could not stand, the lower limbs being in a state of rigid contracture. Her speech was hesitating and slurring and her manner vacant. She was unable to retain the urine night or day, this condition having followed a period of inability to empty the bladder except after great delay. On testing the vision it was found that she could only read Jaeger No. 6 with the right eye, whilst with the left she could not see No. 14. Ophthalmoscopic examination showed both discs (especially the left) greatly atrophied, even the nasal side being grey. There were nystagmiform movements in each eye. At the same time she could carry a glass to her lips with either hand very fairly.

CASE 6.—A single woman aged nineteen years, at Christmas, 1892, had an attack of facial paralysis which lasted a month. On recovering from influenza in February, 1893, she found some loss of control over her legs in walking; she staggered and stumbled. In about six months she had recovered the power in her legs except that she could not walk far. Her complaint had been called hysterical paralysis. When seen by me she had weakness of the right leg which had existed for eight months, with numbness in some of her fingers and the sole of one foot. She had intention tremor. The knee-jerks were well-marked, but there was no ankle clonus and no nystagmus. Vision with the right eye was $\frac{6}{12}$ and with the left $\frac{6}{9}$. The opinion given was that she was in an early stage of insular sclerosis. A year and a half later the tremor of the right hand was reported to be diminished, but the right leg dragged more. She had recently on one occasion lost all power suddenly in the right leg and to a great extent in the left. This was accompanied by a feeling of "pins and needles." A few days ago I heard that she was more helpless than ever.

I could easily multiply such cases were there time. It will be noted that there is only an imperfect resemblance of symptoms in these cases, but that is what one must be prepared to expect in this disease. The islets of interstitial myelitis which eventually become sclerosed are variously scattered in individual cases, producing therefore disorders of function referable to different parts of the frame. Considering, indeed, the morbid anatomy of the disease it is quite remarkable how much general resemblance may be found in the cases. In several the "intention tremor"—i.e., the tremulousness of the arm when a voluntary movement is undertaken—is marked; in others this is absent. Nystagmiform movements of the eyes occur in several. A history of diplopia is very common, whilst incontinence of urine is of great frequency. I look upon these symptoms as pointing to organic disease of the central nervous system. There are two others upon which, in my experience, great stress should be laid as indicative of organic disease. One is impairment of vision, with more or less atrophy of optic discs. The other is the history in the case of recovered power in a limb where this had been more or less lost, with recurrence on one or more occasions of similar paresis after longer or shorter intervals in the same or some other limb. The fact that in the course of insular sclerosis there are apt to be periods varying in length of almost or even complete subsidence of symptoms, though mentioned by Charcot and some succeeding writers, is not yet, I think, sufficiently remembered and taken into account. These intervals of exemption are sometimes long. In a lecture given here last year I showed a patient in whom there had been an interval of eleven years between her attacks. When sixteen years old she had attacks of powerlessness in the right arm, so that she used to drop things. These attacks recurred during three months and then altogether ceased. At twenty-seven years of age she had a sensation of pins and needles in the left foot and her leg dragged. When shown here she presented a typical picture of insular sclerosis.

CASE 7.—In 1877 a girl aged twenty years was brought to me with great loss of power in her legs, especially the left. A short time previously the right had been most affected. She complained also of numbness of the left hand. She was typically hysterical in manner and her moral character I was told had changed. She had marked "intention tremor,"

impaired articulation, and ankle clonus, on the strength of which symptoms I expressed the opinion that she was suffering from organic disease, probably insular sclerosis. A few months later I heard that she was quite well. Two and a half years after my examination her medical man, to whom I applied for information as to the sequel, wrote me as follows: "When last saw Miss —— she was very well. ..... I cannot help thinking that her symptoms are due to that wonderful simulator—hysteria." I heard nothing more of her till 1891 (fourteen years after her visit to me), when I was called into the country to see her. She had been bedridden for two years and presented all the unmistakable characteristics of advanced insular sclerosis.[1]

CASE 8.—A woman aged forty years lost all power in the left leg at the age of thirty-three years. After six months she recovered and was able to walk well. She remained well for four years, when the right leg began to go as the left had gone in her former attack. Three years later the left leg again lost power quite suddenly and when I saw her both legs were useless. Her case had been diagnosed, I was told, as hysteria, and she had been hypnotised for many months previous to consulting me. I found inability to write, with great incoördination of the hands, marked atrophy of the right optic disc, nystagmus, and exaggerated knee-jerks. She was evidently suffering from insular sclerosis. A month later she died from cardiac failure, probably due to invasion of the bulb by the disease.[2]

CASE 9.—A girl sixteen years of age suffered from partial loss of power in her legs and failure of coördination in them. Her condition was diagnosed as hysterical, and this appeared to be confirmed by her complete recovery in two or three months. She remained apparently well for more than five years, during which time she was in the habit of taking a large amount of exercise, walking, riding, and hunting. Then she complained one day of some difficulty in walking and three days afterwards became perfectly paralysed in the lower extremities. She lay powerless for from three to four weeks and then gradual improvement took place, and she regained strength enough to walk with support. A little later she suddenly again relapsed and became paralysed in the arms as well as the legs. I was told that the case had been pronounced to be one of hysteria and the Weir-Mitchell treatment recommended. Examination showed the existence of marked intention tremor in each arm, especially in the left, excessive knee-jerks, and slight ankle clonus. The right optic disc was atrophic. She was evidently suffering from insular sclerosis. A year later I learned that the disease had greatly progressed; there was great contracture in the legs, incontinence of urine and fæces, still further impairment of sight, with loss of memory.[3]

I can hardly lay too much stress upon the fact that intermissions of the kind shown in these cases are very common, although they are not constant, in the course of insular sclerosis. It is evident that the intervals of apparent recovery are peculiarly liable to give rise to the opinion that the loss of power has been hysterical. Here let me for a moment try to estimate the value of various symptoms as pointing, on the one hand, to organic disease and, on the other hand, to an hysterical condition. Intention tremor, if well marked, appears to hold a most important place in the diagnosis of insular sclerosis; it is true that in the hysterical there is not unfrequently a clumsiness of movement of the hand when directed towards an object (arising probably from a loss of muscular sense), but this rarely assumes the character of a rhythmical tremor. I cannot call to mind (looking back over many years) any instance in which well-marked intention tremor was observed in a case which the sequel showed to be of purely functional character.

Nystagmus or nystagmiform movements must also be considered important evidence of organic disease. It is, of course, necessary to remember that these movements are liable to occur in some other diseases, in coarse disease of the cerebellum, and of the corpora quadrigemina, in Friedreich's ataxy, and in chronic alcoholism. The presence of these must be excluded. Nor must it be forgotten that nystagmus, besides occurring in miners, may sometimes be found as a temporary and solitary symptom incapable of explanation in the present state of our knowledge. But this is extremely rare.

Ankle clonus if strongly marked is a valuable symptom of organic disease of the antero-lateral column of the spinal cord. But the phenomenon, usually in an imperfect form, may be of functional origin. It is very rare indeed, in my experience, for ankle clonus of well-pronounced character to exist in the absence of organic disease.

Of greater weight than any of these symptoms is atrophy, even though it be slight, of one or other optic disc. I have never seen this symptom in any case in which the sequel failed to confirm the organic character of the disease. Let me say here that a few years ago I showed that some degree of optic atrophy was present in the course of 43 out of a collection which I had made of 100 cases of insular sclerosis.[4]

Pallor of the disc will almost invariably be found associated with some visual defect. This may take the form of a central scotoma or of greater or less concentric narrowing of the visual field. In some cases the ophthalmoscope fails to detect change in the fundus oculi, although the size of the visual field or the acuteness of central vision is found by testing to be diminished.

In each of the two patients who have been before you there is very considerable contraction of the visual field. This concentric contraction cannot be ascertained by any means at our disposal to differ in character from that which occurs in some cases of hysteria, a circumstance which will be recognised as adding exceedingly to the very great difficulties which beset the differential diagnosis of insular sclerosis in an early stage. It may be asked why I do not lay great stress upon this condition of the visual field in my patient as a weighty argument in favour of her case being one of simple hysteria, as it was originally supposed to be. My reasons are these:—1. I have seen this concentric contraction of the visual field before in cases which were undoubtedly examples of insular sclerosis. 2. The concentric contraction is found almost as much marked in the first patient shown (about the diagnosis of whose case as one of insular sclerosis there can be no doubt) as in the second patient shown, who has presented hysterical symptoms. 3. This concentric contraction is associated with some non-symmetrical pallor of the optic discs. (I must warn you that a slight degree of pallor of the optic disc is very easily overlooked. It has to be searched for with care, but in order to avoid being unconsciously prejudiced I always examine the discs with the ophthalmoscope and come to a judgment as to their colour *before* inquiring into the visual acuteness or the extent of the visual fields.)

There is a symptom which is of very considerable value in the diagnosis of insular sclerosis and that is the state of the plantar reflex. It is a rule of almost universal application (as I have repeatedly urged for many years past) that the plantar reflex is either entirely absent or very feebly indeed expressed in almost all cases of hysterical paraplegia. If we exclude cases of gross structural disease of the spinal cord or brain, in the course of which the plantar reflex is not seldom lost, and also the not very infrequent instances of congenital absence of the phenomenon, we shall find, I think, that loss of plantar reflex points to a "functional" symptom. It may come and go in circumstances in which the presence of, at all events, any gross structural disease may be easily excluded. In patients with hysterical paraplegia the plantar reflex, entirely absent at the commencement of a course of Weir-Mitchell treatment, will be found to return as recovery takes place. In my experience the retention of the plantar reflex in a case of loss of power in the lower extremities of doubtful character affords a strong presumption that there is structural disease. The converse, however, does not apply. Although, if you observe closely, you will find that as a grand general rule cases of insular sclerosis are characterised by retention of the plantar reflex, you will now and again find one in which, at least for a while, the phenomenon is absent. It has been so in the case of the second patient shown. As I have shown you at the present time tickling the foot-sole produces retraction of the toes; but during a short period, when she was in the out-patient department, no such effect was produced. I believe this to have been a "functional" symptom occurring in the course of organic disease. It is very important to remember that this kind of complication—the occurrence of "functional" symptoms—is common in the course of insular sclerosis and must be allowed for. How greatly it increases the difficulties of diagnosis may readily be conceived.

Lastly, let me say that until such symptoms as nystagmus, diplopia, pallor of the optic disc, marked intention tremor, or

[1] Vide "On the Simulation of Hysteria by Organic Disease of the Nervous System," 1891. Since the publication of that work the patient, I am informed, has died with terrible bedsores and bladder trouble. Op. cit.

[2] Op. cit.

[4] Atrophy of the Optic Nerve as a Symptom of Chronic Disease of the Central Nervous System, Brit. Med. Jour., Oct. 7th, 1882.

incontinence of urine make their appearance in a case about which doubt has existed I do not think that we can as a rule safely pronounce a diagnosis of insular sclerosis. But in a case in the history of which paresis has occurred in one or more limbs, with spontaneous recovery, and repeated recurrence of the symptom in the same or another part, after longer or shorter intervals, together with a history of amblyopia, either temporary or persistent, my experience would lead me to diagnose insular sclerosis in the absence even of the symptoms first enumerated.

A Lecture
ON
THE SPREAD OF PLAGUE.

Delivered before the Epidemiological Society on Dec 18th, 1896,

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GENTLEMEN,—The history of plague has been so often written that it is unnecessary for me to even sketch its devastations and distribution in pre-Christian, early Christian, mediæval, or more recent times. My remarks will be confined to an exposition of matters appertaining to the epidemicity of the disease as it has been met with during the latter half of this century, and more particularly to a description of the information gathered during the outbreak in China in 1894-6, and of the most recent evidence of its activity in the Bombay Presidency. The reasons for selecting the Hong-Kong epidemic as the basis of my dissertation are that plague was first studied there bacteriologically, and that many medical men, myself amongst the number, had ample opportunity of observing and recording the disease. Without entering into the discussion as to whether or not all epidemics styled "plague" in Biblical and mediæval literature were of the nature of the bubonic plague of recent times, there can be no doubt that since 1850 the name "plague" has been applied to a definite train of symptoms which are considered to constitute a specific disease. As we proceed it will be seen how during different outbreaks some one symptom attains a fatal pre-eminence, but not to the exclusion of others, which might at any time assume the death lead and serve to baptize the disease as "bubonic," "hæmorrhagic," "typhoidal," "pneumonic," and so forth.

During the latter half of the century the names bestowed on plague have been as follows:—1. In 1856 in Tripoli, it was known as "typhus with glandular swelling." When the disease reached the island of Chios in the same year it was called "petechial typhus analogous to that of Tripoli." 2. In Mesopotamia, where the disease was prevalent from 1856-85, and possibly up to the present day, the titles, "adynamic typhoid fever" and "intermittent fever with glandular swellings" were usual. 3. In Persia, where plague seems to be endemic since 1864, the term "hæmorrhagic fever" is used to designate a pestilence which differs from the diseases with which the Persians are familiar. 4. During the years 1877-79 the Russian province of Astrakan was visited by a disease which was, and is, regarded as plague, but which was variously described as: (*a*) intermittent fever with buboes; (*b*) croupous pneumonia with buboes; (*c*) typhus with glandular swellings proving fatal by pneumonia; and (*d*) a peculiar form of mumps. That all the above-mentioned outbreaks were actually plague, a specific disease caused by a specific bacillus, will never be known; but the presumptive and clinical evidence is decidedly in favour of their being one and the same disease. 5. In Hong-Kong, where a moiety of languages obtain, the epidemic was known as:—(*a*) the "plague" or "the bubonic plague" by the British; (*b*) "la plaga" by the Spaniards; (*c*) "de peste bubonica" by the Portuguese; (*d*) "la peste" by the French; (*e*) "la pestilenza" by the Italians; (*f*) "die peste" by the Germans; (*g*) "wan-yik" by the Cantonese, the term signifying an epidemic disease of high mortality; (*h*) "yang-tsu-chwang" in Yunnan, which, being interpreted, means bubonic disease; and (*i*) "li-tsu-cheng" in Pakhoi, where the disease has been endemic for many years. The name "black death" was never used, nor were any of the names by which it was known in Tripoli, Mesopotamia, or Persia, or Russia applied to it, although hæmorrhages, pneumonia, petechiæ, and typhoidal signs and symptoms were not wanting. Perhaps the most interesting name is that of the "rat plague," by which it is known in various parts of Asia, thereby affording additional proof, if such were needed, of the widespread infection of the rat during plague epidemics.

The name "plague," however, is not one which helps us to place the complaint in its proper scientific niche in the category of disease. The word conveys the idea of an unusual disease, attacking many persons and attended by a high mortality, but that gives it no scientific value any more than the "wan yik" of the Chinese. Were I to attempt to classify plague I would place it amongst the specific fevers and particularise it under the name of "polyadenitis" and individualise it still further as "malignant polyadenitis." It may be objected that adenitis is not always present, that many plague stricken patients die before the glands are even swollen and that therefore the name is defective; but it is needless to point out that in many diseases the most typical of symptoms are at times absent and yet the cases can be classed with their kind. To justify the prefix "poly" to the word "adenitis" it is necessary to remember that although one gland alone may be clinically apparent, most, if not all, the lymphatic glands are found to be enlarged at the post-mortem examinations. The most recent report in regard to this subject is interesting. "Thirty-three cases (22 per cent.) were received without a proper bubo. In most of these cases multiple adenitis was found, the general size of the glands being that of a lentil. In the latter stages of the disease other buboes formed in different localities and complicated the case; 90 per cent. of the cases showed swelling of the intestinal, bronchial, and mediastinal glands in different stages."[1]

The term "bubonic" so frequently applied to the disease is not so appropriate as would at first sight appear. A bubo is essentially the swelling of a gland caused by the entrance of septic materials in the tract of lymphatics over which the gland presides. This cannot be said to obtain in plague, for the so-called bubo of plague can in no sense be regarded as a sympathetic swelling, but merely the outcome of a blood poison. If it is to be classed a bubo at all it must be distinctly understood to be an "idiopathic" bubo, a true "bubon d'emblée." One never speaks of the buboes of tertiary syphilis or of scrofulous buboes. The terms may be clinically correct, but they are not in common use; they have, however, as much right to be called bubonic as the glandular enlargements in plague. With these considerations before us I would venture to name the disease "Malignant Polyadenitis" in the hopes that attention may be drawn to the naming of the disease by more competent students than myself.

Plague or malignant polyadenitis we may define as an acute febrile disease of an intensely fatal nature, characterised by inflammation of the lymphatic glands, marked cerebral and vascular disturbances, and by the presence of a specific bacillus. It is only since 1894 that we have been able to set forth a definition with precision; it is only since then that we have acquired the knowledge of a definite bacillus by which the disease can be recognised scientifically when ordinary symptoms are in abeyance. In this definition no mention is made of hæmorrhage, pneumonia, petechiæ, or carbuncles.

At the present day plague is confined to Asia, but since 1850 it has made its appearance in Europe, Asia, and Africa. The *western* limit of plague during the latter half of the century is the Canary Islands, where it raged in 1852; while its *eastern* limit is the Island of Formosa, off the coast of China, where it is now prevalent. The *southern* limit is practically the Tropic of Cancer, but the *northern* range is indefinite. Since 1850 plague has never travelled further north than Astrakan, about 45° N.; but we have it on excellent and sustained authority that Moscow, Norway, and Sweden, and latitudes as far as 60° N., have within the present century been visited by plague. All limits are, therefore, fairly definite with the exception of the northerly limit. In other words, plague has been met with from 19° W. longitude to 121° E. longitude and between 40° N. latitude

[1] Report of Dr. M. Wilm, dated Hong-Kong, May 20th, 1896.

to 19° S. latitude. Plague has never been known in the Western Hemisphere or anywhere south of 19° N. of the Equator.[2] The Basin of the Mediterranean and the strip of country which runs parallel to that sea across the Asian continent from Turkey to China may be roughly taken as its present belt during the nineteenth century, but the Mediterranean part of the belt has disappeared almost wholly within the present generation. A map of the plague-stricken districts within the last fifty years shows plague astride the Himalayas with a giant limb reaching on one side the Red Sea and on the other the shores of the Pacific.

What determines the distribution it is impossible to say. Racial distinctions do not account for it, as the Mongoloid and Indo-European races are equally attacked. Neither ocean nor air currents have aught to do with its transit. It seems to thrive in the densely packed population of Canton and in the sparsely populated semi-desert regions of Rajputana and Arabia; the elevated plateau of Thibet and the low-lying valleys of the Euphrates are equally affected. It occurs during the summer's heat and the winter's snows. In fact, no known meteorological condition has any effect upon either the genesis or the exodus of plague.

As animals are affected, it is interesting to inquire what animals are affected, what is their geographical distribution, and what share, if any, they take in its spread. The animal which above all others is known to be affected by plague is the rat; but the wide geographical area throughout which this animal is met with would seem to frustrate any attempt to determine a collateral distribution. On looking a little more closely, however, we find rats (the Murinæ) divided into two great sections—the mures, inhabiting the Old World (except Madagascar), and the sigmodontes, inhabiting the New World and Madagascar. Of the mures, one subfamily, that of the Nesokia, is met with, reaching from Palestine to Formosa across the northern part of India. The southern limit in India seems to be where the great bandicoot, or pig rat, exists, and here plague is unknown. This is the only animal which presents a habitation well-nigh corresponding to the present distribution of plague, and it is the animal above all others which is looked upon as being liable to be attacked by plague. The geographical distribution of this family of rats well-nigh coincides with the plague belt as delineated.

Pigeons are said to be severely stricken in Bombay at the present moment, but what kind of pigeon is attacked I have not yet been able to ascertain. When we have the information it will be interesting to note its geographical distribution. We have no notice from China, however, of the pigeons being attacked by plague. The part the rat plays as a distributor of plague will be dealt with later when we come to consider the relationship of animals to plague generally.

With regard to the continuity of plague outbreaks it would appear that in the plague belt the disease is ever active, now in one place and now in another. At times we find it in Arabia, then in Persia and the Himalayas, and the wave travels eastwards over Yunnan and Southern China to the sea. The disease oscillates, now east and now west, but with a fatal precision, making the slow swing of the pendulum of plague within a fairly definite area. A glance at the table giving the dates at which plague appeared in epidemic form since 1850 will confirm this. Taking the chief seats passed *en route* between the Red Sea and the Pacific we find that plague appeared as follows:—In 1850, India; 1850, China; 1853, Arabia; 1853, India; 1856, Tripoli; 1858, Mesopotamia; 1859, Tripoli; 1863, Persia; 1867, Mesopotamia; 1869, India; 1871, Yunnan; 1872, Persia; 1873, Mesopotamia; 1874, Arabia; 1876, India; 1876, Mesopotamia; 1877, Tripoli; 1877, Russia (Caspian Sea); 1879, Arabia; 1880, Mesopotamia; 1881, Persia; 1881, China (Pakhoi); 1883, Afghanistan; 1884, Mesopotamia; 1886, Persia; 1887-89, Arabia; 1890, China (Yunnan); 1893, Tripoli; 1894, China (Canton, Hong-Kong); 1895, China (Macao); 1896, China (Hong-Kong); 1896, India (Bombay); and 1896, Merv (?). A study of this table shows the continuity of the course of plague and how the eruption in one district is followed by its appearance in another. A slow traveller, it, however, stays when it comes, and unless the scenes of its visitation are well garnished it becomes endemic.

The cause of plague is the advent of a definite bacillus, and it is the life-history of this bacillus which must in future occupy the attention of bacteriologists and clinical observers. The proximity of the bacillus is at the present day known only by its effect on human beings, and, it may be, rats as well. What fosters it appears to be bad sanitation; once established time alone will stay its ravages so far as any given epidemic is concerned, but there seems every hope that improved sanitation will check its recurrences.

The *prodromata* of plague may be divided into the remote and the immediate, but I will consider them together. Time and again has it happened that before an outbreak of plague, during a period varying from a few months to several years, buboes with fever have been observed in a more or less epidemic form. In 1877 the variety of plague which infected Astrakan, previously to the serious outbreak that occurred in 1878 some 150 miles higher up the Volga, was classed as a "pestis minor." No one died from the disease *per se* and but few people were confined to bed. Should such another outbreak take place in the neighbourhood the diagnosis will be readily cleared up by an examination of the blood, the tissues, and the excretion.

I was of the belief until within the last few days that this disease—this pestis minor—was of a nature wholly apart from true plague. From Calcutta, however, the news of the discovery of a bacillus allied in every respect to the Kitasato bacillus of true plague and associated with the variety of plague known as pestis minor has altered my views, although the bacillus is stated not to possess the toxic or virulent properties of the true plague bacillus, but to be similar in all other respects. The real question at issue at present is: Is there a disease of an epidemic character, attended by a low death-rate, characterised by polyadenitis and showing in the blood and tissues a bacillus resembling the bacillus met with in typical plague (malignant polyadenitis), and yet so apart clinically that it is either a separate disease or caused by the same bacillus in a lesser or non-toxic form? In the discussion of this subject it is necessary to ask the following questions:—1. Does pestis minor occur as a precursor, as a collateral ailment, or a sequela of true plague? 2. Is it confined to the plague belt delineated in the map? 3. Has it anything to do with plague? 4. Is it a disease *per se*? Dr. Payne in the "Encyclopædia Britannica," writes as follows: "In the minor form of the disease spontaneous swellings of the glands occur chiefly in the armpits, but also in the neck or other parts, which either undergo resolution or suppurate. There is a certain amount of fever; the temperature is rarely high, but has been known to be 104° F. The duration of the disease is from ten to twenty days usually, but may be eight weeks, for most of which time the general health is but little impaired and the patient able to go about as usual. It rarely, if ever, causes death, the only fatal case at Astrakan in 1877 having been so through a complication. The disease is not obviously contagious; whether it is propagated by infection or not is unknown. It is possibly rather of a miasmatic character. This form of disease has sometimes preceded or followed severe epidemics, as in Mesopotamia (Irak) on several occasions (1873-73) and in Astrakan (1877). Its importance in relation to the origin of plague has only lately been appreciated. It might be expected that gradations would be found connecting this form with the severe epidemic form; but this appears to be not usually the case, the latter form appearing somewhat suddenly and abruptly; hence the minor form has probably often been regarded as a 'distinct' disease, even when observed in plague countries." From all hands we have evidence of such a disease—namely a pestis minor benign polyadenitis. 1. The Russian outbreak at Astrakan in 1877 was probably; nay, certainly, of this nature, the low rate of mortality being sufficient to stamp it other than true plague. It is to be noted also that the typical plague which ranged in the same province appeared, not amongst the community afflicted with pestis minor, but in a district 150 miles away, where pestis minor was unknown. 2. In Calcutta six years ago a form of fever existed among the British troops there which in all points resembled the present form of bubonic fever which exists there now—namely, fever with specific glandular swellings. 3. We have it also from Calcutta that the natives are frequently afflicted with glandular enlargements during malarial fever. 4. In the far east, from Singapore, the Straits, and along the coast of China as far as Shanghai, between the years

[2] This remark requires to be accepted with reservation, as it is reported that several cases of plague came to Hong-Kong from Singapore (2° north latitude).

1892 and 1896, we have accounts of a singular affection of the inguinal glands which occupied the attention of the Singapore and Hong-Kong branches of the British Medical Association. The correspondence was carried on between the societies, and there is no doubt the affection at both places was identical in its nature.

I am compelled to draw attention to this subject in consequence of a paper which appeared in the *British Medical Journal* of Sept. 26th, 1896, by Surgeon C. C. Godding, R.N. Surgeon Godding refers to many cases of chronic glandular swelling attended by fever and anæmia, and he gives a careful clinical account of several such cases as having occurred in Hong-Kong. This is the first notice to the profession generally of a type of ailment with which all practitioners in the far east are but too familiar. When the literature of the present outbreaks of plague comes to be written, the recorder will no doubt light upon these cases of glandular swellings given by Surgeon Godding, and take them as evidence of the association of pestis minor with the malignant type. We must, therefore, deal with them, come to what conclusions we may. When I brought the matter before the Hong-Kong Medical Society in 1893, I mentioned that I employed the term "bubon d'emblée" to designate the condition and that I had treated thirty-eight cases in thirty-two months. My account of the ailment was as follows: "A slowly developing non-venereal bubo occurring in one or other groin, attended by general weakness, anæmia, and fever. The groin glands affected are discrete at first, but gradually the swellings amalgamate and a large mass as big as half an orange or larger presents. At the end of about twenty days points of boggy softness occur, and if the bubo be left to itself the skin becomes undermined and the pus finds its way to the surface through two or three or more fistulous openings. The swelling, when cut into early, shows a peri glandular serous infiltration, and when pus occurs the gland will be found lying detached except by shreds of tissue at one or two points. The gland when cut into shows many focal points of suppuration and breaks down quite easily beneath the fingers." Surgeon Godding advocates arsenic as almost a specific, but my own treatment latterly was early incision. It is necessary to make a clean sweep of every gland that can be felt or seen, as there is a great tendency to recurrence in any gland or piece of a gland that is left. Seeing that glands, except strumous glands, are seldom excised for other diseases, I examined the records of the Government Civil Hospital in Hong-Kong in connexion with the excision of glands, and I found the following:—In 1891, 19 buboes were scraped or excised; cervical glands, 1. In 1892, I have not the record. In 1893, 27 buboes were scraped or excised. In 1894, 12 buboes were scraped or excised. 1894 was the plague year, and the list of operations is stated to be incomplete. Taking this evidence in conjunction with Surgeon Godding's and the private practitioners' in Hong-Kong and Singapore we have weighty evidence of a widespread affection, be the cause what it may.[3]

Another form of glandular idiopathic enlargement is seen in what may be styled an epidemic form in children. In the year 1891, I reported twenty-three cases at the Medical Society in Hong-Kong, and since that date cases have frequently occurred. The affection consists of an enlargement of one gland, seldom more, in the necks of children over the sterno-mastoid about the middle of its length. The swelling is seen *upon* the sterno-mastoid, but it might be found to commence, were it met with early enough, in a gland on its anterior border. The disease appears infectious and is attended by feverishness. There is no throat affection, nor is the seat of the disease in the parotid. We, the medical practitioners, styled the condition for convenience sake mumps, but we all admitted that neither the parotid nor the submaxillary glands were the seat of trouble. It will be remembered that the term "peculiar form of mumps" was employed by some to designate the Astrakan disease in 1877. 6. In the years 1893-4, and since, in Hong-Kong, cases of fever of a typho-malarial type occasionally presented in the third or fourth week a general enlargement of lymphatic glands, which lasted for a week or ten days and then subsided. They were deemed interesting cases at the time, but with the fresh light thrown upon them by recent investigation, more especially the researches in Calcutta, they assume a new aspect.

[3] Europeans were mostly attacked by these buboes, being 88 per cent. of the cases operated upon.

To sum up the evidence before us it would seem—(1) that a fever with glandular enlargement, pestis minor, a "benign polyadenitis," is an established disease; (2) that it may be independent of plague or malignant polyadenitis; (3) that the two may coexist; and (4) that the one may exist independently of the other.

As to infection and contagion, direct contagion, that is, transference of the disease from the sick to the healthy by bodily contact would appear at the first glance to be an element in the transmission of plague. How otherwise can we explain the circumstance that, when a case of plague occurs in a house, those dwelling in the house and brought in contact with the sufferer are almost certain to be seized, and not only so, but few, if any, of the other inmates escape. The next in order to be seized by plague are the relatives of the sick and the visitors to the house, who, going to their own homes, set up a fresh focus of infection. Of the community, medical men, clergymen, and attendants, who are brought in contact with the sufferers, more readily acquire the disease than others who are alien to the family and house. These facts would appear to prove conclusively the contagious nature of plague. But there is another side to the argument. As long ago as 1835, when plague was epidemic in Egypt, out of ten French medical men who attended the sick only one contracted the disease. Further, we have the well-known case of Bulard during the same outbreak, who, anxious to prove his contention that the contagious nature of plague was much exaggerated, for two days wore the shirt of a patient who had died from plague. Yet Bulard did not contract the disease. More recently we have the evidence of the Hong-Kong epidemic in 1894. None of the European medical men in attendance on the plague patients, in all, some fifteen in number, were attacked by plague. Those men were freely exposed in the wards and at post-mortem examinations, yet none were infected. Further, none of the British or Italian born nurses—these were the only two European nationalities represented—were attacked by plague during 1894. But a more interesting fact still is that none of the Chinese students of the College of Medicine were attacked. For six weeks these men were on duty in turns night and day in the Plague Hospital. Eight of them acted as ward attendants and clerks throughout the period and were consequently in constant contact with the sick. A racial immunity might be claimed for Europeans, but in face of this fact it cannot hold good. If there be any truth in the acquisition of disease during an epidemic by fear or nervousness the case of these students refutes the legend. They saw that the Europeans escaped and how terribly their countrymen suffered; they had to contend with the superstitious beliefs of their country, inherited and acquired; they were breathing the same air, eating similar food, hearing daily, hourly even, of the deaths of their friends, relatives and acquaintances, yet none of them succumbed to plague. We have, therefore, two opposite conditions before us—namely, plague entering a house and seizing practically all the inmates; and, on the other hand, medical men, nurses, and native students acting as clerks and dressers escaping completely. Where, then, lies the truth of the contagious nature of plague?

As usual, there is a channel of escape from either of these two extremes of argument. The immunity above related does not extend indefinitely. The Europeans attacked during the 1894 epidemic were chiefly soldiers of the Shropshire regiment, then stationed in Hong-Kong. When plague required sanitary interference beyond the power of the local board these soldiers came forward and volunteered to help in the work of cleansing and purifying the city. The work assigned to them was of the most laborious order and they were exposed to a concentration of the contagion, for the field of their duty lay amongst the dwellings of the poorest class of Chinese who were suffering from plague. Those houses were of the vilest kind of habitation mankind is acquainted with; small, windowless, low-ceilinged, reeking with filth and excretions, they presented infection in its most concentrated form. Further, the soldiers had to use spade and shovel to dig down into the accumulated layers of dirt on the floors of the houses and throw it into the street. It was this occupation more than any other to which is attributed the infection of the soldiers. During the 1894 epidemic two of the sisters of the Italian Convent contracted the disease and died, but they were neither of them Italian born; they were both Eurasians and in very humble circumstances. In 1894, also, three Japanese medical men contracted plague, of whom one died.

The two who recovered were both considered to have inoculated themselves at a post-mortem examination on a case of plague. The facts recorded would seem to show that, during the 1894 epidemic in Hong-Kong, English practitioners and nurses enjoyed an immunity which did not extend to the Japanese medical men or to the nurses of Eurasian blood.

The evidence of the subsequent outbreak in Hong-Kong in 1896 goes to show that Europeans were much more frequently attacked than in 1894, and two of the nurses in attendance on the sick contracted plague. One of the nurses was a British-born nursing sister at the Plague Hospital, where she had been for many months. She never was ill until the very end of the epidemic, when she got a sharp attack of plague, from which, however, she fortunately recovered. The sister (Katherine M'Intosh) believes she was infected by a little child she nursed, and whom she frequently carried about in her arms. The other European nurse was an Italian-born sister in the convent, who believed she was infected in the same way—viz., by nursing and carrying about a child sick from plague. The Italian sister died from her disease. It is interesting to note that the patient from whom the English sister contracted her disease recovered, whereas the patient of the Italian sister died. Was the recovery of the English sister due to a lessened degree of infection, seeing that her patient recovered, and the death of the latter due to the extreme malignancy of the emanations from the body of the dying child? is a pertinent question. Nor is this all, for yet another sister in the convent died, presumably infected whilst nursing her companion. These three deaths seem to point markedly to contagion rather than infection as the means of spread, for although there were some 600 persons in the convent none of the other inmates were afflicted thereby.

Gathering this evidence together and trying to focus it we find that the soldiers who were affected were exposed—if there is any truth in intensity of contagium at all—to the most concentrated form of the poison. They worked not in the streets in the open air, but in reeking hovels for several hours together Intimate and prolonged contact with the contagium in an active condition seems to be the explanation of their infection. The same is to be said of the two European nurses who were seized. Both attributed their ailment to intimate and prolonged contact with a generating source—viz., a child carried in the arms not for a few minutes, but for several hours daily extending over several days. That there are, moreover, degrees of power in the contagium, even when emanating from the human body, seems to be supported by the nurse and infecting child both recovering in the one instance, and the nurse and infecting child both dying in another. Bulard sleeping in the dead man's shirt proves nothing further than that the plague-infected garment did not generate poison of an intensity sufficient to infect. The poison grew every moment more dilute, but a nurse carrying a child, throwing off contagium continuously, is an exposure of a different stamp. The immunity of the medical men and Chinese students does not annul the effect of prolonged and intimate contact as being a means of spread; for it must be remembered that the medical man "visits" only, he does not stay for a day beside one case as a relative does, nor does he sleep or eat under the same roof as does a nurse. In this way also the immunity of the Chinese students is to be accounted for. They performed their task in a newly-built, commodious, and roomy mat-shed. Freely ventilated by being raised three feet from the ground, and its lofty roof constructed so that air swept across between the side walls and the roof with large apertures in the roof itself, the chance of contracting the disease from so diluted a form was reduced to a minimum.

The practical lesson to be learned from these statements is that free ventilation, and attention to ordinary hygienic rules, lessen the chance of contracting the disease to a very great extent, not only for Europeans, but also for natives; but that all are liable to contract the disease when either from the calls of duty or wilful neglect exposure is extreme.

(To be continued.)

AWARDS FOR MEDICAL SERVICES.—Dr. J. S. Mackay and Dr. Alex. L. Curror of Kirkcaldy have been awarded by the town council £100 each for services rendered by them during the late epidemic of typhoid fever.

A Clinical Lecture
ON
PELVIC INFLAMMATION IN WOMEN.

Delivered at the Middlesex Hospital on Dec. 3rd, 1896,

BY WILLIAM DUNCAN, M.D.,
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GENTLEMEN,—Pelvic inflammation in women is probably the most frequent disease which in one form or another is met with in general practice; it is often dangerous to life and always causes a great amount of chronic suffering if allowed to progress unchecked. On the other hand, if diagnosed and treated in its early stages it can often be cured. Far better still, if proper preventive measures (which we will consider presently) be adopted many women can be saved from the onset of the disease.

In the first place let me say that the manner in which pelvic inflammation has been hitherto dealt with in most text-books on the diseases of women requires complete revision. Formerly it was the custom to divide pelvic inflammation into (*a*) perimetritis or pelvic peritonitis, and (*b*) parametritis or pelvic cellulitis, to give a long string of causes for each disease, and to describe separately the symptoms, physical signs, and treatment of each. But nowadays with the help of the light which has been thrown on the subject by performing abdominal section for diseases of the ovaries and tubes the situation is completely changed. And what do we learn? Why, that parametritis (pelvic cellulitis) is rarely met with except after parturition, and that pelvic peritonitis (perimetritis) is in the vast majority of cases associated with, and caused by, pre-existing disease in the Fallopian tubes or ovaries, or both. This being so, when discussing pelvic inflammation in women we must consider not only perimetritis and parametritis, but also disease of the tubes (salpingitis, hydrosalpinx, pyosalpinx, and hæmatosalpinx) and of the ovaries (ovaritis and ovarian abscess).

I particularly want you to remember that, except after parturition, pelvic inflammation in its widest sense is due to infection extending along the Fallopian tubes *from the uterus*. A precisely analogous state of things is met with in disease of the appendix vermiformis. The peritonitis, cellulitis, and abscesses which complicate an appendicitis are due to an infection inside the appendix which passes through its walls to the surrounding peritoneum and cellular tissue. In exactly the same manner does an infection of the Fallopian tube cause similar results: with this difference, that the infection, instead of having to extend through the walls of the tube (as in the case of the appendix), finds an easy exit in the first instance through the abdominal ostium. The cause, then, of pelvic inflammation is almost always either septic or specific infection.

Septic infection is in the great majority of cases the result of parturition, though a few cases may be due to the use of sponge or laminaria tents or to operations performed on the uterus with dirty instruments; this latter is not very likely to occur in these days of aseptic surgery. Bernutz analyses 99 cases of peritonitis as follows: 43 occurred in puerperæ; 28 occurred after gonorrhœa; 20 occurred during menstruation; and 8 were traumatic—viz., 3 owing to excessive coitus, 2 from syphilis, 2 from the use of the sound, and 1 from the use of the vaginal douche. Specific infection from gonorrhœa is accountable for 28 of the 99 cases; but in my opinion the 20 cases in which menstruation is given as a cause of peritonitis had in addition disease of the tubes, probably of gonorrhœal origin. So that almost all the cases of peritonitis occurring in women, apart from labour, are most likely secondary to specific infection from gonorrhœa. I do not go so far as to say that any man who contracts gonorrhœa and gets completely cured of it before he marries is in the least likely to infect his wife; but, from personal knowledge, I can assure you that men who consider themselves well and who are "passed sound" by their medical men, but who probably have a slight and occasional gleet which the excitement of marriage renders virulent, do sometimes infect their wives with gonorrhœa,

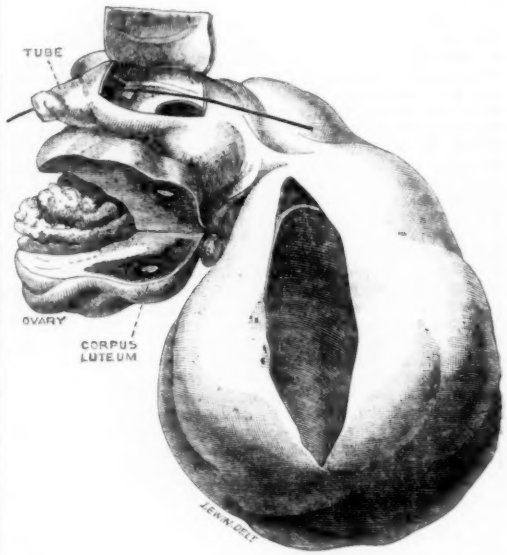
which, unless promptly and vigorously treated, may give rise to untold suffering and completely ruin a woman's health and happiness. These unfortunate cases are doubtless met with more frequently in the lower orders, but are not confined to them by any means. I may here briefly mention two cases which occurred in my practice in 1896.

CASE 1.—A woman aged twenty-four years, who was perfectly well up to marriage, began two months later to suffer from dysmenorrhœa, somewhat profuse menstruation, and an inter-menstrual yellow discharge. On examination I found the upper half of the vagina in a state of granular vaginitis; the uterus was tender on bimanual examination and a muco-purulent discharge was seen exuding from the os uteri, around which was some erosion. No thickening of either Fallopian tube could be felt. On questioning the husband he at once told me that he had suffered from a severe attack of gonorrhœa two years previously. This was followed by a gleet, which, however, for six months before marriage was very slight in amount and only occurred at intervals, so his medical man told him he might safely marry. After marriage the gleet became more abundant. It was evident the wife had gonorrhœal endometritis, and vigorous measures were at once called for so as to prevent the disease spreading to the tubes. Under anæsthesia I dilated the cervix up to No. 14 Hegar and thoroughly scraped away the endometrium with the flushing sharp curette; next I swabbed out the uterine cavity with iodised phenol, and then packed it with a long, thin strip of iodoform gauze; finally the vagina was packed with iodoform gauze. These plugs were allowed to remain for forty-eight hours undisturbed; they were then removed, the vagina was irrigated with a 1 in 3000 perchloride of mercury solution, an iodoform pencil was passed into the uterine cavity, and the vagina was again filled with tampons of iodoform. Subsequently for a fortnight the vagina was douched twice daily with a similar solution and a couple of iodoform plugs were passed into the upper part of the vagina. In two months the patient was perfectly cured and she continues so. The husband is now under treatment by a surgeon who found a stricture of the urethra, and of course coitus will not be resumed until the patient is quite well, as he fully understands the great risk his wife would otherwise be exposed to.

CASE 2.—The patient was a woman who married last Easter. I saw her six weeks later when she said that a week after marriage she began to suffer from pelvic pains, a yellow discharge, pain on micturition, and great pain on coitus. She had been treated all this time by her husband's medical attendant, who gave her medicine, but no local examination was made or suggested. I at once insisted on examining her and found she had urethritis, vaginitis, and endometritis. She went into hospital without delay and I carried out the same treatment as in Case 1 and with a like satisfactory result. On sending for the husband he admitted that he contracted gonorrhœa in January last, but said his medical man told him he might marry when he did. He also admitted having had a urethral discharge the day after marriage; this he attributed to taking a good amount of wine at the wedding breakfast! I explained to him the danger his wife ran if he resumed intercourse before he was completely cured and advised him to consult a surgeon. This, I am sorry to say, he neglected to do, the result being that his wife again came to me a month later with recurrent vaginitis, for which she had a second time to enter the hospital. I need hardly add that I reproached the husband in the strongest terms with his brutal conduct.

If, then, pelvic inflammation is usually due, as I maintain it is, to infection carried from the uterus through the tubes, let us shortly consider what happens. A good deal depends on the virulence of the infection. In mild cases the only result may be a "catarrhal" inflammation of the lining of the tube, in which the secretion is serous in character, and this may escape into the uterus or it may even pass through the abdominal ostium into the peritoneal cavity without setting up peritonitis; or in addition there may be cellular infiltration into the coats of the tube, causing it to become greatly thickened, even to the size of one's finger (chronic interstitial salpingitis), but without any pus formation. These are the cases in which, if the co-existing endometritis be cured, a return to perfect health may be reasonably looked for. In other cases of catarrhal inflammation the ends of the tube are closed, the tube becomes more or less distended, giving rise to a hydrosalpinx, or, whilst the abdominal ostium is closed, the uterine end of the tube remains patent and the distended tube at intervals discharges its contents into the uterine cavity (intermitting hydrosalpinx). Fig. 1 is a typical illustration of a specimen of this condition which I removed from a patient some years ago.

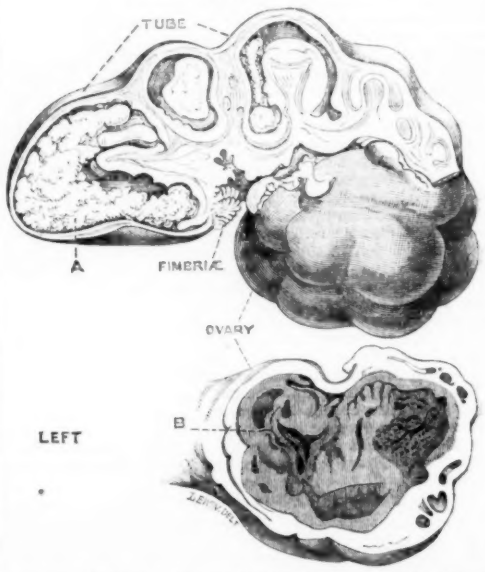
FIG. 1.



Intermitting hydrosalpinx: left Fallopian tube and ovary. The tube is greatly distended and the coats are thinned, the abdominal ostium is closed, and the uterine end (through which a bristle is passed) is patent. The ovary is enlarged and adherent to the tube. It contains a corpus luteum and a blood clot.

In more severe cases, however, a purulent salpingitis sets in; the pus may escape for a time into the uterus, but sooner or later a little passes through the abdominal ostium, giving rise to more or less severe pelvic peritonitis, with all its

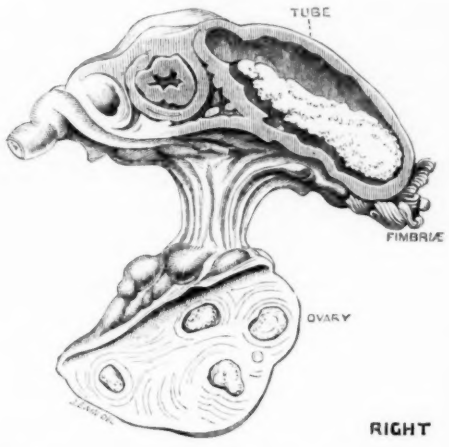
FIG. 2.



Left ovary and tube. The ovary is enlarged, adherent to the tube, and full of blood (B). The tube is distended with inspissated tuberculous pus (A).

dangers and results. In these cases of purulent salpingitis the ostium becomes closed by peritonitic adhesions and the pus may escape through the uterine end of the tube, but more often this also gets closed. Pus accumulates in, and distends, the tube, giving rise to pyosalpinx. A rare condition is where the tube becomes distended with cheesy, tuberculous pus. Figs. 2 and 3, which illustrate this condition well, are taken from a case on which I operated in 1890. The patient, aged twenty-two years, had been married two years and had never been pregnant. The catamenia began at fifteen years of age and were always accompanied by pain and clots, but especially so since marriage. When the abdomen was opened the peritoneum was seen to be studded with rice-like bodies. Both the tubes and the ovaries were full of yellow, cheesy pus, and were everywhere matted

FIG. 3.



Right ovary and tube. The ovary is twice the normal size, containing deposits of cheesy pus. The tube is distended with similar material.

down by adhesions, making removal very difficult. The patient made an excellent recovery and was in good health several years after the operation.

When the tube leaks into the peritoneal cavity peritonitis follows, and this may be either (*a*) serous, (*b*) plastic, or (*c*) suppurative; it may be quite localised or affect the whole pelvis, or even in very severe cases may become general. Usually it is limited in extent, the ostium of the tube becomes closed, and the ovary is matted to the tube; then ovaritis follows or an abscess may be formed in the ovary. (Fig. 4.)

The form of peritonitis most often met with is the plastic, where lymph is thrown out, matting the parts together; and in severe cases, where this matting is general, it feels on vaginal examination as if the uterus were fixed in a mass of plaster-of-Paris which had been poured in from above. After a longer or shorter time most of the effusion is absorbed, but adhesions are left, and these bind the various pelvic organs together in all manner of ways. Sometimes the adhesions are few and easily broken down when abdominal section is performed; at other times they are so firm, dense, and universal that it is only after a prolonged and dangerous operation that the ovaries and tubes can be shelled out and removed. Indeed, in some few cases their removal has to be abandoned.

As I have already pointed out, it is after labour that pelvic cellulitis or parametritis occurs; especially when there has been extensive laceration of the cervix, an exudation takes place into the cellular tissue of one or other broad ligament, giving rise to a unilateral swelling which pushes the uterus over to the opposite side and which, though usually absorbed, may form an abscess that bursts externally above Poupart's ligament but may open into the bowel, vagina, or bladder.

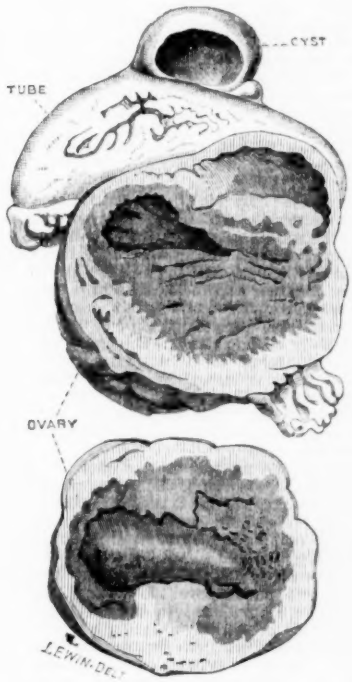
With regard to the symptoms and physical signs af acute pelvic inflammation I need say little. The sudden onset, pyrexia, pelvic pain, and the mass to be felt either surrounding the uterus or to one side of it cannot well be mistaken. But when we have to diagnose chronic disease of the tubes and ovaries associated with slight peritonitis the case is by no means so simple. The chief symptoms are (*a*) pain, (*b*) hæmorrhage, and (*c*) yellow discharge.

The pain varies; in catarrhal salpingitis it is slight, as there are no pelvic adhesions; but in purulent salpingitis and ovaritis (especially when the ovary and tube are matted together) there is more or less constant pain in the back and iliac fossæ, extending down one or both thighs, and aggravated by coitus, walking, or jolting in a carriage.

Hæmorrhage is pretty constant in these cases in the form of menorrhagia; the periods recur every two or three weeks, are more profuse, painful, and accompanied by clots. In the intervals of the periods there is a muco-purulent uterine discharge.

The physical signs vary of course with the condition present. In simple salpingitis it will probably be impossible to detect anything wrong with the tubes, but where the inflammation has been severe and of some duration one or both tubes can be felt as thick and tender cords running out from the sides of the uterus. Let me advise you to always make a digital examination per rectum when the bowels have been emptied, as you can thus learn far more than by a vaginal examination. In many cases the ovaries can be felt enlarged, tender, and prolapsed into Douglas's pouch. In other cases a more or less rounded mass will be felt to one or other side of the uterus, which latter is displaced somewhat to the opposite side, is tender on pressure, and its

FIG 4.



Chronic peritonitis. The ovary and tube are matted together; the ovary (shown in section) is much enlarged and full of blood; the tube is dilated.

mobility is impaired. This is the condition which until recent years has been described as a "pelvic cellulitis of the broad ligaments." As a matter of fact it is nothing of the kind, for, as already mentioned, pelvic cellulitis occurs rarely except after parturition. In these cases the tube is thickened, perhaps contains some serum or pus, the ovary is enlarged, and cystic, and both tube and ovary are matted together by adhesions forming a tumour which appears larger to the fingers on bimanual examination than it really is found to be when the abdomen is opened. In other

cases, when one or both tubes are distended, the condition is easily recognised provided the tube develops the typical shape—an elongated cystic swelling constricted at intervals and extending outwards from the uterus. Even when the tube has this shape one cannot positively say what is the nature of the fluid inside it, for a pyosalpinx may exist without any irregular rise and fall of temperature. As a rule, however, the symptoms are fewer and less severe in a case of hydrosalpinx than in one of pyosalpinx. Not infrequently the dilated tube develops a rounded shape (owing to adhesions) and then it cannot be distinguished from an ovary distended with pus or cystic. Indeed, I never like to give a positive diagnosis of the nature of any pelvic swelling until after I have opened the abdomen. A point to remember in examining a pelvic tumour is that care is necessary lest it be ruptured. About eighteen months ago I was suddenly summoned to the hospital one afternoon and told that whilst examining a woman in the out-patient department the clinical assistant felt a cystic tumour in the pelvis suddenly disappear and the woman became faint. She was at once admitted. On my arrival an hour later she had rallied and I could find no sign of a ruptured cyst; still, as the resident medical officer assured me there had been one I at once opened the abdomen and found about a pint of clear fluid which had escaped through a rent in a thin-walled ovarian cyst. This I removed and the patient recovered without a bad symptom; fortunately for her the cyst contents were not purulent.

Now what is the prognosis in cases of chronic pelvic inflammation? If the tubes be only affected with catarrhal inflammation, provided the endometritis be cured, perfect recovery may result. More often unfortunately the patient becomes crippled, suffers from periodical attacks of peritonitis, which usually subside leaving behind still more injury to the pelvic organs; sometimes the peritonitis becomes general and a fatal result ensues. As a rule, the tubes being bound down and their ends sealed up the woman is sterile; but occasionally, owing to the injury to the mucous lining of the tubes, an ovum becomes arrested in one or other tube, and being impregnated there an extra-uterine pregnancy with all its dangers follows. If one or both tubes be dilated into a hydrosalpinx the patient may have fairly good health but is liable to recurrent attacks of peritonitis. If, however, the contents of the tube be pus, or if there be an ovarian abscess, there is far greater danger, as peritonitis is sure to recur, rendering the patient a chronic sufferer, whilst also she runs the risk of the collection of pus bursting into the peritoneal cavity and causing a rapidly fatal end. In a few cases the pus, either from a pyosalpinx, ovarian abscess, or suppurating cellulitis, may burst externally or into the bowel, vagina, or bladder, and continue discharging in that manner, giving rise to hectic fever, emaciation, and (if untreated) ultimate death. On the other hand, if a patient who suffers from chronic pelvic peritonitis, the result of salpingitis and ovaritis, can be tided over the menopause her condition will probably much improve.

Lastly comes the most important question of treatment. It being undoubtedly true that in these cases prevention is far better than cure, and as so very many follow parturition, we nowadays exercise the greatest care ourselves (and insist on the nurse doing likewise) that our hands, instruments, and everything that comes into contact with the patient's genitals are perfectly aseptic. If a day or two after delivery the temperature rises above 100° F. and the lochia are at all offensive I give an intra-uterine douche of a 1 in 5000 perchloride of mercury solution night and morning, and if after two or three such douches the temperature does not fall and the lochia become odourless I carefully curette the whole of the interior of the uterus and thus remove every possible source of infection there; after curetting another douche is given and a twenty-grain iodoform suppository is passed well into the uterine cavity. These measures can be carried out with the patient lying on her left side and without an anæsthetic.

With regard to pelvic inflammation occurring apart from labour or an abortion, and remembering that it is almost always preceded by an endometritis, it behoves us to most carefully investigate all cases in which married women complain of pelvic pain, pain on coitus, increased menstruation, and an inter-menstrual yellow discharge, for assuredly if we find only an endometritis (without involvement of the tubes) we can by adopting the vigorous treatment I have already described cut short the disease and save the woman from untold future misery. If, however, we first see the case when acute pelvic peritonitis is actually present, then the condition must be treated in the usual way by giving a saline purge to start with, followed by hot vaginal douches at a temperature of from 108° to 112° F. three times a day; these douches must be given whilst the patient is lying down and several quarts of water used each time. If sedatives are required I prefer morphia suppositories. Hot fomentations or poultices applied to the abdomen are soothing and at all events do no harm. The acute attack usually subsides in ten or fourteen days, leaving the uterine appendages more or less damaged.

We are often consulted by patients who give a history somewhat as follows. "After the last confinement (which may have been months or years previously) they had an attack of 'inflammation' and since then have suffered with pains in the pelvis, excessive and painful menstruation, with a yellow discharge in the intervals of the periods, also usually pain on coitus." On examining these patients we probably find the uterus bulky and tender on being pushed up, its mobility is less than normal, and in one or both lateral fornices (and extending into the pouch of Douglas) can be felt ill-defined, tender, and elastic swellings. Clearly the condition is that of disease and matting of the appendages together following a pelvic peritonitis. Now, what course of treatment should be adopted in these cases? If the disease be not of long standing and has not been already treated the patient should be given absolute rest in bed for two or three months. Coitus must on no account be indulged in, so that unless the patient can be removed from home the best way of preventing its taking place and at the same time of reducing pelvic engorgement is to carefully and thoroughly tampon the vagina once in every forty-eight hours with wool, the uppermost plugs being saturated with a 20 per cent. solution of ichthyol in glycerine. It is a good plan to commence the treatment by dilating and curetting the uterus. The bowels must be regulated by saline aperients and a tonic may be given. Whilst the patient is lying in bed a course of general massage is useful; but massage of the pelvic organs and electricity, in my opinion, do more harm than good and should be carefully avoided. If at the end of this course of treatment the condition of things be little or no better, or if (as unfortunately so often happens) the woman's state of life prevents her from having such a prolonged rest, there are only two courses open—either the patient drags on her life more or less of an invalid and in suffering, or she elects the wiser course of having abdominal section performed and the diseased parts removed. The mortality from this operation, when performed by a skilled operator, is not more than 3 per cent. The risks of the operation and the fact that in all probability both tubes and ovaries will require removal must be fully explained to the patient and her friends, and their full consent to allow the operator a free hand—so that he can use his own judgment as to how much requires removal—must in all cases be obtained in writing before any operation is entered upon.

The results are in most cases very satisfactory, the patients losing their constant pain, and although it sometimes takes months for them to regain robust health I have never yet had a patient who regretted undergoing the operation. If operation be absolutely refused and the patient be in a position to afford the expense a six weeks' annual course of the mineral waters and mud baths at one of the German watering-places—such as Schwalbach or Kreuznach—will sometimes prove beneficial in relieving pain and promoting the absorption of inflammatory pelvic products, so that life may be rendered fairly tolerable until the menopause sets in, after which the pelvic conditions may be expected to cause less trouble. But, no matter whether the patient be wealthy or poor, if a cystic swelling of the tubes or ovaries be detected, as it is impossible to say definitely whether the contents be purulent or not, it is our duty to urge the necessity of abdominal section being performed without delay.

ST. JOHN AMBULANCE ASSOCIATION.—His Royal Highness the Prince of Wales, President of the St. John Ambulance Association, has sanctioned a grand ambulance *fête* and demonstration to be held at the Crystal Palace in May or June next in commemoration of Her Majesty's long reign, under the personal patronage of Her Royal Highness Princess Christian, President of the Norwood and the Great Western Railway Centres, and other members of the Royal Family

ACTINOMYCOSIS AND MADURA DISEASE.

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PROFESSOR OF COMPARATIVE PATHOLOGY AND BACTERIOLOGY, KING'S COLLEGE, LONDON.

(WITH COLOURED PLATE.[1])

Is human actinomycosis a rare disease in this country, or are there many cases lost sight of under a variety of names? I am anxious to draw the attention of the general practitioner to this disease, by indicating its clinical manifestations, and more especially by pointing out how easily it may be diagnosed by means of a bacteriological examination, as this may lead to the recognition of many cases in private practice, to their publication, and ultimately to the determination of the extent to which actinomycosis exists in this country. I propose to add a short account of madura disease, which should be studied in connexion with actinomycosis, as there are several points bearing upon their relation to each other which require further elucidation by careful observation and experiments. The readiness with which actinomycosis may be mistaken for other morbid conditions which resemble it and the absolute necessity for a microscopical examination are illustrated by many of the early descriptions of this disease both in man and in cattle. In 1845 Langenbeck of Kiel made notes of a case of vertebral caries and prepared drawings of peculiar bodies present in the pus from an abscess. The drawings were published many years afterwards and there can be no doubt that these particles were typical ray-fungi. In 1843 Lebert received from M. Louis some pus of a thick, almost gelatinous, constituency from the thoracic wall of a man aged fifty years. The patient was suffering from a pulmonary affection cancerous in nature. The pus contained a number of little spherical bodies of a slightly greenish-yellow colour, each about the size of a pin's head. They were readily crushed between two glass slides, and on examination with a power of fifty diameters they were found to consist of a soft, connective substance and many wedge-shaped corpuscles arranged in a radiating manner. Lebert figured these bodies and thought of helminthic débris, but he searched in vain for echinococci and cysticerci. Rivolta of Turin claims to have been the first to discover the ray fungus in a bovine case. As early as 1868 he published a paper on this subject, while Perroncito, who studied the sarcomata of cattle, claims to have observed the micro-organism in 1863. Hahn of Munich in 1870 detected it by microscopical examination, for he states that in a bovine case of "wooden tongue" he found characteristic organised structures which he provisionally regarded as a species of mould fungus. Robin in 1871 both described and figured most accurately the bodies which we now recognise as "ray fungi." They were found in two or three cases in the pus of deep-seated chronic abscesses in man, and were described as yellowish grains composed of elements swollen at one end and tapering off at the other, arranged in a regular series radiating from a common centre, which consisted of granular matter. Bollinger, in 1876, pointed out that actinomycotic growths occasionally occurred on the upper and lower jaws of cattle. These growths either started from the alveoli of the back teeth or from the spongy tissue of the bone, and by increasing in size loosened the teeth. In their progress they destroyed bone, muscles, mucous membrane, and skin. After some time they frequently broke down, forming ulcers, abscesses, and fistulæ; while in some cases tumours were formed which might attain the size of a child's head. Actinomycosis in man was first described as such by Israel in a paper published in 1878, and Ponfick was the first to clearly recognise the identity of the disease in man with that occurring in cattle. Israel, in addition to the club-shaped elements, recognised and described a central core of fine filaments. In a work which he published in 1885 the various cases which had been observed up to that time were described. From this time onwards numbers of cases in man have been recognised with the aid of the microscope, and the publications of Bostrom, Moosbrugger, and my reports to the Agricultural Department of the Privy Council may especially be referred to. Altogether some hundreds of cases have been diagnosed, but very few of these have been contributed by English practitioners. In England, Dr. T. Acland was the first to recognise the disease by microscopical examination of the liver after death, and Dr. H. Taylor was the first to demonstrate the presence of the ray fungus during the life of a patient. Shattock found specimens in museums which, though bearing other names, were really from cases of actinomycosis. Among the English cases I may also mention those described by Dr. Skerritt, Mr. Eve, Dr. Ransom, Dr. Fairweather, Dr. Poore, and Mr. Malcolm Morris. I shall refer more in detail to some of the comparatively recent English cases in describing the various manifestations of the disease.

Though actinomycosis in cattle has long been known in this country, it, as in man, was mistaken for other diseases or received popular names. Indeed, to many the disease is still familiar under the names of wens, clyers, scrofulous abscesses, polypus, lymphoma, cancer of the tongue, lumpy jaw, bone cancer, bone tubercle, osteo-sarcoma, and fibro-plastic degeneration of bone; so that until about eight years ago, when my Reports were published, actinomycosis was not generally recognised as a common disease of cattle in this country, in spite of the interest excited by the work of Fleming, to whom is due the credit of being the first to recognise the fungus in a bovine case. In 1887 there was a disease prevailing in Norfolk, and in the following year outbreaks of the same disease were reported in Essex, Hertfordshire, Cambridgeshire, and Middlesex. In the Norfolk outbreak on one farm 8 per cent. of the cattle were suffering from wens or sitfasts, which I found on microscopical examination to be produced by actinomycosis. In all similar specimens which I have received from different parts of England and Scotland, as well as from the colonies, I have been able to demonstrate the presence of the ray fungus. I also met with the disease in other forms, including a case of pulmonary actinomycosis, with grape-like growths on the pleura, which had been regarded as tuberculous. In Australia tumours in the upper and lower jaw commonly occur in cattle, and were attributed to scrofulous inflammation, or designated cancer or lumpy jaw, but a microscopical examination has revealed their true nature. In America also the disease was known as lumpy jaw, and is prevalent. Mr. Casewell, State Veterinarian, examined cases microscopically, and on one farm in Yates City, where there were eighty head of cattle, no less than sixteen were found to be suffering from actinomycosis. Mr. Casewell reported to the Board of Live-stock Commissioners for the State of Illinois that the disease was common in nearly every county in that State and that in his opinion it was increasing. In one instance 109 animals suffering from actinomycosis were slaughtered. But is the disease really spreading in America, or is it that by increase of knowledge and by more careful observation more cases have been brought to light? And as regards actinomycosis in man in England, may we not well ask whether the disease is really a rare one, or is it not rather that many cases are still overlooked through want of discrimination with the microscope? With a view to obtaining further information with regard to the human cases in this country I will proceed to point out the various ways in which the disease has been found to manifest itself in cattle and in man.

MANIFESTATIONS OF ACTINOMYCOSIS.

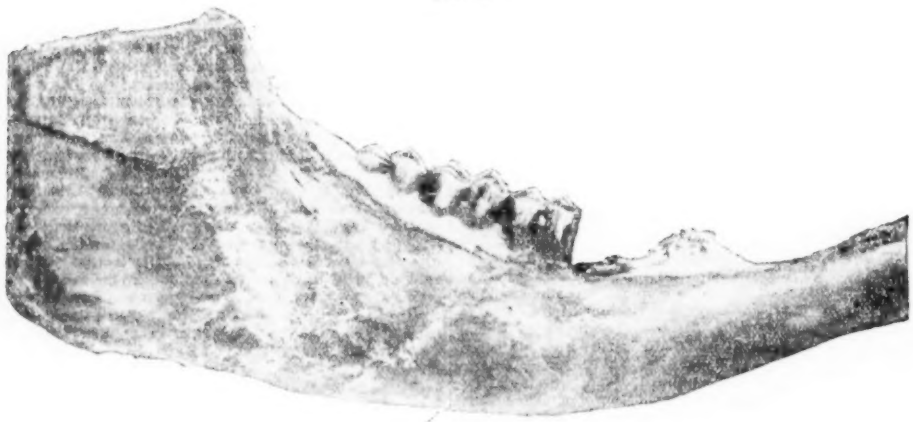
I.—ACTINOMYCOSIS OF THE DIGESTIVE SYSTEM.

(*a*) *Of the upper and lower jaw.*—In cattle actinomycosis commonly attacks the upper and lower jaw and is frequently associated with carious teeth. The growth extends and invades the neighbouring cavities and sinuses, destroying the tissues with which it comes in contact, expanding the bones into thin plates or reducing them to the appearance of pumice stone. Quite recently I received the head of a Sussex steer in which the lower jaw was diseased on both sides (Figs. 1 and 2). On dissecting away the soft parts it proved to be a most characteristic case of so-called osteo-sarcoma. The teeth on both sides were carious. In man also the fungus may gain access through carious teeth, or wounds or fistulæ of the jaw, and very possibly by inflammatory processes in the pharynx and tonsils. The disease attacks the lower jaw most frequently. The tumour

[1] This article is based upon a Post-Graduate Lecture delivered at King's College on Oct. 30th, 1896. The coloured plate and some of the photographs are reproduced from the article on Actinomycosis in "Bacteriology and Infective Diseases."

is found in close connexion with the bone or in the submaxillary or sub-mental region and also in the præ-tracheal region. It occurs, though rarely, in the interior of the bone. In a case described by Israel, that of a woman aged forty-six years, there was a small tumour about the size of a cherry attached to the external surface of the lower jaw, with an opening through which a probe could be passed into the bone. The tumour was incised and scraped away, and a cavity discovered in the bone, admitting a small sharp-spoon.

FIG. 1.



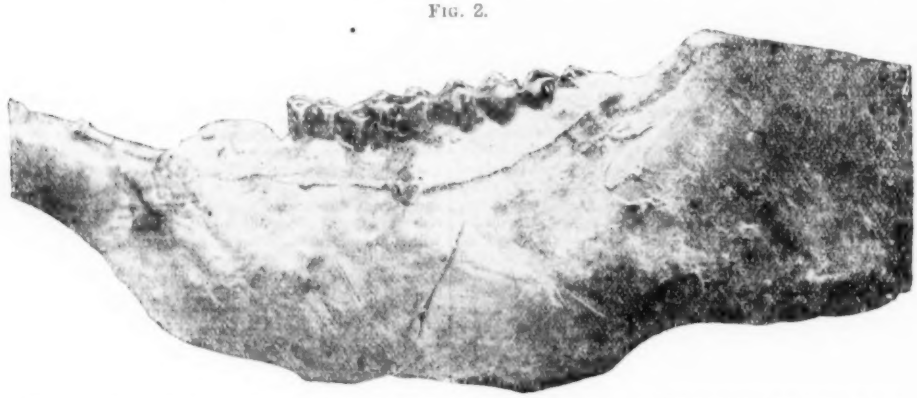
Actinomycosis of the lower jaw of a Sussex steer (in an early stage). (About one-third the natural size.)

Later, a further operation was performed; the periosteum was detached, the cavity of the bone enlarged and the contents scraped out, consisting of granulation tissue, fragments of bone, and the yellowish fungi. At the bottom of the cavity the fang of the canine tooth was found. No return of the growth occurred.

The first cases of human actinomycosis observed in America were connected with the jaw. In 1884 Dr. Murphy described two cases at Chicago. The first patient was a woman aged twenty-eight years. Two weeks previously she had suffered from severe toothache, with swelling in the throat and great pain in swallowing. It disappeared after poulticing, but she was again attacked with toothache and a swelling appeared on the angle of the jaw on the left side. The mouth could not be opened without difficulty; the tonsil was much enlarged and pus was set free on incision. She still suffered from toothache and a small swelling now occurred on the left side of the neck below the jaw. She had several carious teeth. The swelling, which was about the size of a walnut, was punctured and a drainage-tube inserted; a creamy-looking discharge containing yellow granules continued to escape, but the swelling and induration increased. A further operation was decided upon. The carious tooth was removed, and a probe passed into the alveolus showed a communication with the external wound; the angle of the jaw was chiselled away and the alveolus scraped out. Iodoformed gauze was applied and the patient recovered.

The second case was that of a man aged eighteen years who had also suffered with severe toothache and swelling at the angle of the jaw. On examination a carious tooth was noticed. The swelling was well marked and there was fluctuation; it was as large as a pigeon's egg and situated below the jaw. When punctured, thick creamy pus escaped containing the fungi; the sinus was scraped out and in ten days the wound was healed. Another swelling appeared and this was treated as before and the patient recovered.

FIG. 2.



Actinomycotic tumour of the lower jaw of a Sussex steer; a case of so-called osteo-sarcoma. (About one-third the natural size.)

The peculiar feature of growths in this region is their apparent migration. Israel states that in one case a tumour occurred on the alveolar process, close to carious teeth, and later was close to the edge of the jaw in the sub-maxillary region. Thence it disappeared, and a large swelling formed below the hyoid bone, and after this had been incised and

Fig 1.

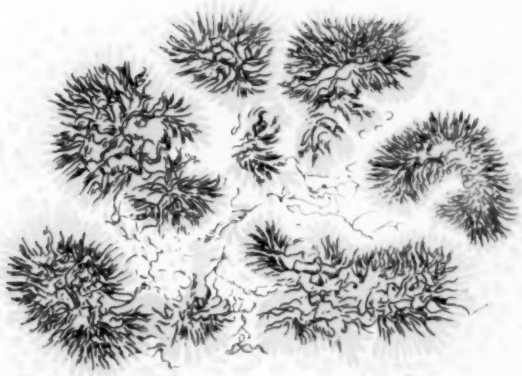


Fig 2.

Fig 3.

Fig 4.

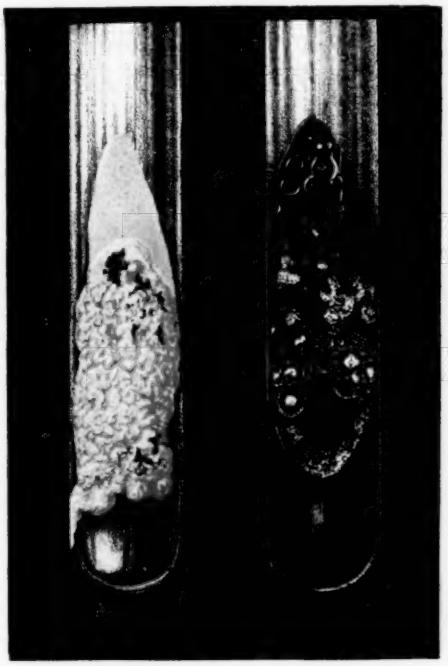


Fig 7.

Fig 8.

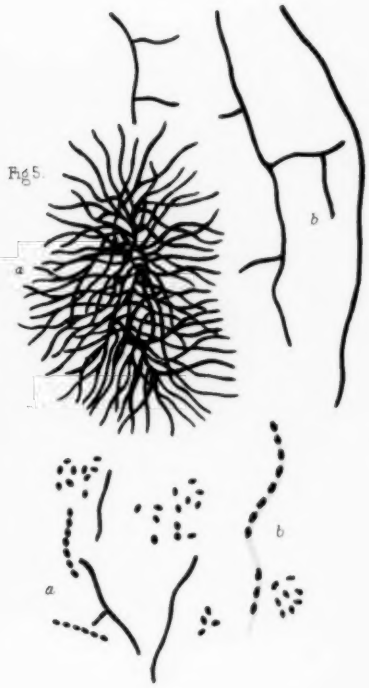


Fig 5.

Fig 6.

TO ILLUSTRATE PROFESSOR CROOKSHANK'S PAPER ON ACTINOMYCOSIS.

had healed an abscess formed above the clavicle. In other cases the disease has been described as extending from the alveolar process to the temporal bone or the base of the skull, destroying bones and even reaching the brain; or the growth may descend by the spinal column, implicating the vertebræ and travelling and pointing in various directions.

(*b*) *Of the lips, gums, buccal mucous membrane, and palate.*—In cattle we find the disease occasionally appearing in the form of nodules, wart-like growths, or ulcers on the lips, gums, buccal mucous membrane, and palate. The nodules and ulceration of the palate were particularly well marked in a specimen submitted to me for examination under suspicion of being the result of a severe attack of foot-and-mouth disease.

(*c*) *Of the tongue.*—In cattle, actinomycosis of the tongue shows itself in the form of nodules or wart-like patches under the mucous membrane, with a special tendency to ulcerate from the irritation of the teeth. These nodules may extend into the deep muscles and often collect in rows more or less parallel to the superficial muscular fibres. Complete transverse sections of the tongue, double-stained, readily show this arrangement even to the naked eye. Induration of the tongue results from secondary interstitial glossitis. I have only in one case found a distinct tumour of considerable size embedded in the substance of the tongue. It was about as large as a small Tangerine orange, and more or less completely isolated from any surrounding neoplasms.

(*d*) *Of the pharynx.*—In the pharynx I have found the disease in cattle in the form of polypoid growths. In one case there was a large growth about the size of a cricket ball which by interference with deglutition produced great emaciation and ultimately death from asphyxia (Fig. 3).

(*e*) *Of the intestines.*—Small nodules about the size of a pea may be found in the human intestine in the sub-mucous tissue and in the mucous membrane itself. They soften and form ulcers with undermined edges, the base reaching the muscular layer. They may undergo cicatrisation, but generally the disease extends through the peritoneum to the abdominal cavity, and perforates the bladder or the intestines or makes its way through the abdominal wall. Symptoms are either absent or not characteristic. The fungus may sometimes be found in the evacuations or by exploratory puncture. In a human case under the care of Chiari death with general marasmus took place at the age of thirty-four years after an illness of two years' duration. The mucous membrane of the intestines was found at the post-mortem examination to be almost entirely covered with whitish patches raised in the centre and covered with yellow and brown granules closely adherent to the subjacent tissues.

FIG. 3.

A Norfolk steer with large polypoid growth in the pharynx producing emaciation; and a "wen" in the pre-tracheal region.

FIG. 4.

Section of liver from a case of actinomycosis in man.

(*f*) *Of the liver.*—The liver has been found to be the seat of the disease in several cases in man. The actinomycotic growths have a characteristic naked-eye appearance from their peculiar honeycombed structure (Fig. 4). The spaces between the fibrous trabeculæ are full of caseous matter, in which the more or less spheroidal masses of the fungus are embedded. In museum specimens which have been for some time preserved in spirit the contents of the loculi may have fallen out and the honeycombed appearance is then much more marked than in recent specimens. In Dr. John Harley's well-known case, which was recognised after death as one of actinomycosis, the patient had been admitted to St. Thomas's Hospital with a very painful tumour, about the size of an orange, projecting forwards from the left hypochondrium. The skin covering it was distended, shining, and pale, and the swelling was very painful on pressure. After death it was found that a number of tumours were scattered throughout the liver, and on examining sections under the microscope Dr. Acland discovered the ray-fungus. Subsequently Mr. Shattock examined similar specimens in the museum of St. Thomas's Hospital, and in two cases with honeycombed abscesses the ray-fungus was detected. Dr. Skerritt and Mr. Eve have both met with this disease of the liver.

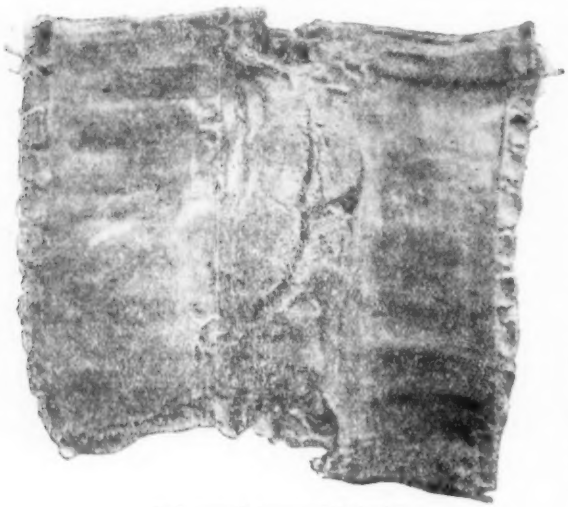
I think it is extremely probable that cases of actinomycotic invasion of the digestive system not infrequently occur in general practice and are attributed to other causes. I am

supported in this belief by the fact that Dr. W. Ransom has published an account of no less than eight cases which have been brought to his notice within the last six years in the Nottingham district alone. In five instances the mouth was probably the seat of invasion and in all the digestive tract was affected. These cases included one of actinomycosis of the orbit, two of actinomycotic perityphlitis, one of actinomycosis of the head and neck, two of actinomycosis of the neck, one of actinomycosis of the cheek, and one of actinomycosis of the rectum and prostate. In the same year Dr. Fairweather recorded a most interesting case of actinomycosis commencing in the vermiform appendix.

II.—ACTINOMYCOSIS OF THE RESPIRATORY SYSTEM.

(*a*) *Of the nasal cavities.*—In cattle the disease may occur in the nasal cavities either primarily or as the result of extension of a growth from the lips or from the pharynx.

FIG. 5.



Actinomycotic tumour of the trachea.

(*b*) *Of the larynx, trachea, and bronchi.*—In cattle polypoid growths, either sessile or pedunculated, arise primarily in the larynx, trachea, and bronchi, or occur secondarily by extension from the tissues in the neighbourhood. I have had one specimen submitted to me in which the disease had invaded the mouth, travelled downwards by the lymphatics, and ultimately developed a polypoid growth in the interior of the trachea (Fig. 5). In one recorded case in man the

FIG. 6

Actinomycotic nodules from the pleura (bovine).

disease existed for seven years and was localised to the bronchi. The fungus was detected in the sputum by microscopical examination.

(*c*) *Of the lungs.*—Actinomycosis of the lungs is of especial interest from its liability to be mistaken for tuberculosis. When there are actinomycotic nodules in the lungs of cattle and actinomycotic grape-like masses on the pleura (Fig. 6) this mistake may be most readily made. In man the course of the disease in the lungs may be thus described. The spores of the ray-fungi are inhaled and pass into the bronchioles and alveoli, where they produce proliferation of round cells, which undergo fatty degeneration. The resulting patches of peri-bronchitis or pneumonia become yellowish-white, suppuration and hæmorrhage from the capillaries follow, and small cavities result, containing pus cells, fat granules, blood, and the fungi. In the neighbourhood of the new growth there is compression of the alveoli, and ultimately the formation of a dense stratum of connective tissue, separated from the cavities by a lining of granulation tissue containing the characteristic fungus. The symptoms are usually obscure; but the sputum may contain the fungi, which are often visible to the naked eye. The apices of the lungs are not, as a rule, affected. There is considerable clinical resemblance to chronic phthisis; cough, night-sweats, pallor, shortness of breath, and hæmoptysis are symptoms common to both. The existence of these symptoms with the absence of tubercle bacilli in the sputum would lead to the suspicion of actinomycosis, and the detection of the fungus is positive evidence as to the nature of the disease. In the second stage the symptoms are more characteristic. The disease spreads to neighbouring parts and pleurisy commonly supervenes. This extension may involve the peri-pleural tissues. Thus the disease may follow the præ-vertebral tissues, descend behind the insertion of the diaphragm, and point as an ordinary psoas or lumbar abscess; it may perforate the diaphragm and reach the abdominal cavity. Peritonitis or sub-phrenic abscess may then result. In some cases adhesions have formed, and the disease has extended to the liver or spleen, or other abdominal organs. The disease may also extend forwards in the direction of the anterior mediastinum and the pericardium. The primary affection of the lung becomes of secondary importance. Grave symptoms occur—hectic fever, night-sweats, rigors, and marked pallor. In the third stage the disease comes to the surface, either over the chest or in the neighbourhood of the dorsal or lumbar vertebræ; a swelling appears of a livid colour, and if punctured no fluid escapes, but if allowed to make its own way to the surface the skin gives way, a muco-purulent discharge mixed with pieces of the growth escapes, and the fungi can readily be recognised.

I have said that the ray-fungi may be detected with the naked eye, and I may illustrate this by a reference to the case recently described by Dr. Vivian Poore. The patient had come under the care of a medical man in the country with all the symptoms of effusion into the right pleura. Paracentesis was performed and in the pus the little yellowish particles were observed. By a microscopical examination the diagnosis of ray-fungi was readily confirmed.

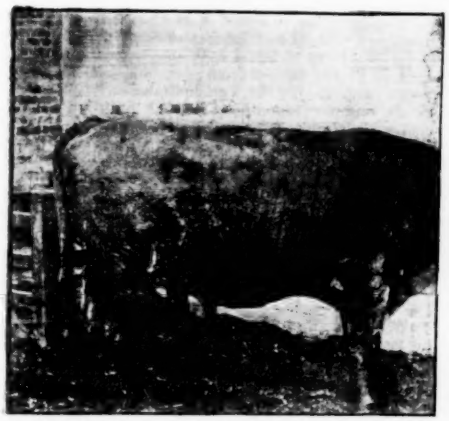
I have indicated how readily this disease may be mistaken for tuberculosis, and the case recognised by Mr. H. Taylor, and subsequently described at length by Dr. Douglas Powell, Mr. Godlee, and Mr. Taylor, is of special interest in this connexion, for there was a strong family history of phthisis. This case was briefly as follows. A boy aged nine years was admitted to the Brompton Hospital for pleurisy. He had a hacking cough, dyspnœa, and hectic temperature. Over the fifth interspace there was a soft swelling. A piece of rib was excised by Mr. Godlee and a large soft mass was felt within the chest walls which was thought to be of sarcomatous origin. Mr. Taylor examined microscopically a fragment of the growth and detected the ray fungus, which was also readily found in the purulent discharge. About four months afterwards the boy died and the case was found at the post-mortem examination to be one of primary invasion of the lungs with extension to the peri-pleural tissues. All other organs appeared to the naked eye to be free from the disease, except the liver, in which there was a small actinomycotic abscess.

A more recent case also very strikingly illustrates the resemblance to tuberculosis and was recorded in THE LANCET.[2] A patient had been suffering with symptoms of acute pleurisy. Paracentesis was performed, but the fever continued. No tubercle bacilli could be found in the scanty sputum. Later the patient came under the care of Dr. Heusser of Davos. Slight infiltration of the right upper lobe and a cavity in the right lower lobe were diagnosed, and to the surprise of the physician in charge instead of tubercle bacilli typical ray-fungi were found in the expectoration.

III.—ACTINOMYCOSIS OF THE SKIN AND SUBCUTANEOUS TISSUES.

The skin and subcutaneous tissues are a favourite seat of this disease in cattle, producing the so-called wens or clyers

FIG. 7.



A Norfolk steer with extensive actinomycotic ulceration of the skin of the flank.

so commonly seen in the fen country. A wen is first recognised as a small tumour the size of a marble or walnut, which increases in size sometimes with great rapidity, and breaks down and discharges its muco-purulent contents through the inflamed and ulcerated skin (Figs. 7 and 8); or

FIG. 8.

A Norfolk steer with a "wen" about the size of an orange in front of the throat.

it may go on increasing, and form a large compact growth the size of a child's head (Fig. 9). These growths when excised, hardened, and cut, have the characteristic honeycombed appearance, produced by the interlacing bands of fibrous tissue, which form a spongy structure, from the interstices of which the fungus tufts and thick yellowish pus have for the most part dropped out. Actinomycotic tumours of the face in man sometimes correspond with "wens" or "clyers," and, as in cattle, they may discharge

FIG. 9.

A Norfolk heifer with a large "wen" in the parotid region.

through the skin and the opening close or a fistula result. They differ in their tendency to form burrowing abscesses instead of recognisable tumours. In this respect they recall chronic inflammation rather than sarcoma-like growths. An interesting case of this kind was brought before the Pathological Society of London by Mr. Waring and reported in THE LANCET.[3] The patient had been admitted to the hospital for a swelling of the cheek, which increased in size and burst into the mouth with discharge of purulent fluid. The swelling subsequently re-appeared and an incision was made at a fluctuating spot. In the pus which escaped the ray fungus was detected.

IV.—ACTINOMYCOSIS OF THE NERVOUS SYSTEM.

Both in cattle and in man, tumours are very rarely found in connexion with the nervous system. They may occur primarily or as the result of extension of the disease from neighbouring parts. Dr. Delépine has met with and fully described a most interesting case in man of an actinomycotic tumour of the brain.

V.—ACTINOMYCOSIS OF THE REPRODUCTIVE SYSTEM.

The disease has been very rarely found to occur in man in the organs of reproduction. I have only met with one case in cattle, and this was the result of an extension to the scrotum of actinomycotic ulceration of the skin in the vicinity.

VI.—UNCLASSIFIED CASES OF ACTINOMYCOSIS.

In addition there are a number of recorded cases presenting very varied symptoms and anatomical relations in which it has not been possible to satisfactorily determine the path of infection or to account for the seat of invasion. I need only refer in illustration of these cases in man to one reported in THE LANCET.[4] This case was under the care of Dr. Marten of Adelaide. There was an ill-defined swelling near the great trochanter, associated with weakness, fever, night sweats, and insomnia. The swelling was incised and the discharge contained abundance of the ray-fungus. Later an incision was made almost the whole length of the thigh and various sinuses scraped out and a portion of the vastus externus which was studded with nodules was excised. In cattle the disease has been found in a few cases localised in the udder.

BACTERIOLOGICAL DIAGNOSIS.[5]

Careful examination of pus from a case of actinomycosis in man will reveal to the naked eye little yellowish-white or yellow bodies, which a casual observer might mistake for grains of iodoform. On collecting some of the discharge in a test-tube and holding it between the light and the eye the

[2] THE LANCET, Dec. 14th, 1896.

[3] THE LANCET, May 25th, 1895.

[4] THE LANCET, Jan. 12th, 1895.

[5] The concluding paragraphs are largely drawn from my Report to the Agricultural Department, 1893, and from the article on Actinomycosis in "Bacteriology and Infective Diseases," 1896.]

tufts of fungi appear as brownish or greenish-brown grains, embedded in a muco-purulent matrix. On spreading some of the discharge on a glass slip the largest tufts of the fungus are found to be about the size of a pin's head. They have a distinctly sulphur-yellow colour by reflected light, but appear of a yellowish or greenish-brown tint by transmitted light. With a sewing needle or a platinum wire flattened at the end into a miniature spatula the grains can be readily picked out of the purulent discharge, transferred to a clean slide, and gently covered with a cover-glass. Examined with an inch objective they have the appearance of more or less spheroidal masses of a pale greenish-yellow colour. On removing the preparation from the microscope, and gently pressing down the cover glass with the finger, the grains flatten out like specks of tallow; and on again examining with the same power they are found to have fallen apart into a number of irregular and sometimes wedge-shaped fragments of a faintly brown colour, affording a characteristic appearance. By preparing another specimen and covering it with a cover-glass without completely flattening out the grains, the spherical, oblong, and reniform masses of which they are composed can be recognised with a $\frac{1}{4}$ in. objective as rosettes of clubs. If the grains consist of typical rosettes and be merely covered with the cover-glass and examined without being flattened out between the cover-glass and the slide they will recall to mind, on focussing alternately the centre and the periphery, the appearance of the capitulum of a composite flower. The central portion appears to consist of spherical forms; these are the extremities of the component elements, and as we focus the edge of the rosette these elements are seen laterally and their characteristic club-form is readily distinguished. The central portion may be flattened against the cover-glass, and as the individual clubs vary considerably in size, the appearance of an irregular mosaic is then produced. By examining the peripheral part of a rosette with a $\frac{1}{12}$th in. objective, and especially after pressing the grains into a thin layer, with or without the addition of a drop of glycerine, the characteristic clubs are most readily demonstrated and the most varied shapes observed. In some cases the clubs will be found to be bifid at the extremity; in other cases there are lateral offshoots or daughter-clubs. Here and there will be found clubs closely pressed together like a bunch of bananas, and in other cases the broken-off pieces have a palmate form. In many cases the clubs are divided by transverse fission into two, three, or more segments. As a rule the clubs are regular in shape and about equal in size, while a few are conspicuous by their length. In other parts of a preparation the clubs are replaced by long, slender forms, which are sometimes transversely divided into a number of short links. With suitable illumination many clubs are seen to taper off into slender filaments. In addition there are free filaments, which are twisted, branched, and sometimes spirilliform. Many of the clubs are composed of layers differing in their refractive power and many have the appearance of a central channel. There are also in the same preparation small, highly refractive bodies, fat granules, granular detritus, round cells, pus cells, and sometimes blood corpuscles. The grains differ, as a rule, from those from a bovine source, in the absence of a sensation of grittiness so often transmitted to the finger when pressing the cover-glass upon them, and in the slightly greater tendency of the tufts to retain their compact form. By teasing the grains in a drop of water on a slide, and examining the preparation with a $\frac{1}{4}$ in. or a $\frac{1}{12}$ in. objective, the explanation of this is forthcoming; for by this process the clubs are gradually washed away and a central core remains, which is composed entirely of a dense network of fine filaments. This can readily be observed by using a small diaphragm, and it will be found that the rosettes of clubs are now replaced by tangled masses, having some resemblance to miniature tufts of cotton-wool. These filaments constitute the delicate network which is seen in tissue-sections stained by the method of Gram. This can be readily verified by making a cover-glass preparation of the grains and staining by that method. The clubs in fresh specimens have a faintly greenish tint, and in form and arrangement are quite characteristic and easily recognisable.

The fungus in cattle may in the same way be detected with the naked eye in the muco-purulent discharge or in a scraping from the cut surface of a growth. The tufts of the fungus vary in size under different circumstances, from that of a grain of fine sand to that of a pin's head. If the pus or scraping be spread out on a slide and examined against a dark background the grains appear to be white or yellowish-white in colour; but if examined by transmitted light they appear distinctly brownish. On pressing the cover-glass on the slide the grains readily flatten out, being of a soft, tallowy consistency; or in the process of gently pressing the cover-glass on the slide with slight lateral movement a distinct gritty sensation is transmitted to the finger, owing to the presence of calcareous matter. On examination with a low power the fungus will be recognised in the form of irregular patches scattered over the field, which might readily be regarded as collections of granular *débris* of a brownish or yellowish-brown colour. On examining with a higher power, spherical, ovoid, or reniform bodies are to be seen which are either typical rosettes of clubs, or granular masses with here and there a club-shaped body at the periphery. Pus cells, round cells, fat granules, and minute spherical bodies may also be distinguished. By teasing out the grains in water, and pressing them apart between the slide and cover-glass, we find that the central portion is composed, as a rule, of a structureless core; but the core may be composed of the delicate filaments which are found in cultures and in the fungus from man. Calcareous material, if present, may readily be demonstrated by the action of acids. It will be found that on the addition of dilute hydrochloric, nitric, or acetic acids the calcareous deposit is dissolved while the clubs are not affected, and even with the addition of the strongest acids the only result will be to dissolve out the calcareous matter and clarify the tufts of the fungus, the form of the clubs being still recognisable. Permanent preparations may be made by mounting the fungus in glycerine.

The fungus in stained specimens.—Although the ray-fungus can be detected without any staining process there may sometimes be doubtful appearances, and then sections or cover-glass preparations should be made and stained by the method of Gram and with eosin or with orange-rubin (Plate, Figs 1 and 2). The filaments in human cases can be readily recognised, and this is of value, as it forms an additional means for the diagnosis of the disease. In combination with eosin or with orange-rubin we have a test that is as characteristic and useful as that employed for staining sputum for tubercle bacilli. The discharge, scraping from a growth, sputum, or the isolated fungus is squeezed between two cover-glasses, which are then slid apart; they are allowed to dry, passed through the flame in the ordinary manner, and then stained. The cover-glasses can be cleared in clove-oil, the excess of clove-oil being removed by gentle pressure between pieces of blotting-paper, and then the preparation can be mounted in balsam and rendered permanent. On examination of these specimens the masses of filaments will be found to be stained blue and the tissue elements pink. The filaments vary very much in extent and character in different preparations. In some cases there are masses of short threads, which are some straight, others sinuous, or twisted, and sometimes branched. In other parts the field is occupied by very short, straight, or curved and sometimes even spiral fragments; in others, again, there are comparatively long strands. On examination with a high power and with careful illumination some filaments will be observed to be moniliform, while others are provided with a terminal oval body. There are also free elements resembling cocci which are stained blue, and represent the spores of the organism. If orange-rubin be used instead of eosin the clubs will be more deeply stained. Both methods enable one to determine the exact relation of the threads to the club-shaped bodies. The threads are stained blue and the clubs crimson. In the younger clubs the protoplasm of the thread can be traced into the interior of the club. (Plate, Fig. 3*b*.) In some of the older clubs stained with orange-rubin the central portion takes a yellowish stain, and in others the protoplasm is not continued as a thread, but is collected into a spherical, ovoid, or pear-shaped mass (*b*). In others again, irregular grains, stained blue, are scattered throughout the central portion. The sheath of the thread is stained pink; and the protoplasm, stained blue, fills the sheath, or consists of small spherical and irregular grains, giving a distinctly beaded appearance.

The effect of various reagents should be tried upon the isolated grains. The grains are picked out of the pus and transferred to watch-glasses containing strong potash, xylol, and benzole. If returned to a slide and covered with a

cover-glass the clubs are found unaltered. Water or weak potash washes away the clubs and the filaments become easily distinguished; ether and strong acids have no effect upon them. Corallin soda, Hanstein's violet, and iodine zinc-chloride fail to give any particular reaction. Hoffman's blue stains the clubs, but without bringing out any structural details which could not be observed in the unstained specimens.

Appearances of cultures.—Boström, Wolff, Israel, Paltauf, and others have shown that actinomyces can be cultivated in the ordinary nutrient media. I have carried on a series of cultivations for some years on glycerine agar, gelatine and in milk, in broth, and on bread-paste, and potato, in order to observe the changes which take place and to study the variations which I found in the appearance of sub-cultures. In my experience the actinomyces after a few days on glycerine agar at the temperature of the blood, forms little, white, shining, moist colonies, which may remain stationary or increase and coalesce. In a week or ten days, sometimes earlier, and sometimes after several weeks, the cultures turn a bright yellow colour, but some remain white; others, again, have a tinge of pink and others are yellowish-brown (Plate, Figs. 7 and 8). After a time a powdery efflorescence makes its appearance on the surface of the culture, which may be either yellow or white in colour. The culture may go on increasing, spreading over the surface of the medium, and retain its yellow colour, or it may turn black, partly or completely, while the agar is coloured brownish-black. Cultures have a peculiar sour smell; the variations in cultures were all proved, by careful testing by sub-cultures, to be due to the growth of the actinomyces under varying conditions of soil, temperature, and the supply of air. On microscopical examination the cultures are found to be composed of dense masses of fine branching filaments (Plate, Fig. 5 *a*). Filaments with slight terminal enlargements may occasionally be seen, but typical rosettes of clubs are not to be found. These appearances are only obtained when the fungus is growing in the living body. The stage of efflorescence corresponds with the breaking-up of the filaments into masses of ovoid spores, singly, and in chains often closely resembling streptococci (Plate, Fig. 6). Gelatin is slowly liquefied. Wolff and Israel cultivated actinomyces on raw and boiled eggs and claim to have succeeded by inoculation in the peritoneal cavity, in producing the disease in rabbits and guinea-pigs in the form of tumours of the peritoneum.

Life-history of streptothrix actinomycotica.—The life-history of the micro-organism may be summed up thus. The spores sprout into excessively fine, straight, or sinuous, and sometimes spirilliform threads which branch irregularly and sometimes dichotomously. The extremities of the branches develop the club-shaped bodies. The clubs are closely packed together so that a more or less globular body is formed with a central core composed of a dense mass of threads. The threads can be differentiated by the method of Gram into an external sheath and protoplasmic contents. The club-shaped body externally appears to be mucilaginous, while internally it is continuous with the protoplasm of the thread. It is difficult to say what changes, if any, occur in the club-shaped bodies. Spores and young fungi are taken up by wandering cells and conveyed to a distance from the parent fungus, and thus fresh centres of growth are established.

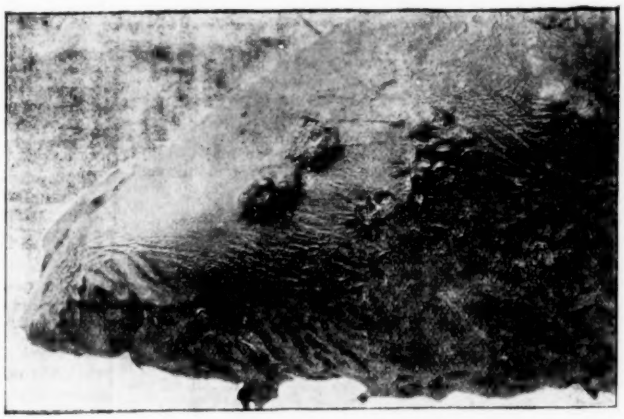
MADURA DISEASE.

Mycetoma, or Madura foot, is a chronic local disease, attacking the hands and feet, and having considerable resemblance to actinomycosis. It is a disease of tropical climates, and is commonly known as the fungus-foot disease of India. A small tumour forms on the hand or foot, which after a year or two suppurates and bursts, leaving one or more sinuses, from which peculiar black particles, or white or pinkish roe-like bodies, are discharged. The disease in the foot may commence in the big toe and spread upwards, involving the leg as far as the knee, and even the thigh. In a typical case, the foot is enlarged and painful, and later there are several sinuses from which a purulent and blood-stained discharge can be expressed containing the characteristic particles. (Fig. 10.)

According to Bocarro[6] all early growths are superficial. Dissection of the growths during an operation, or sections made through the diseased tissues after excision or amputation, show that the disease generally begins in the loose cellular tissue, usually the subcutaneous tissue, and thence extends along the sheath of muscles and tendons to other soft tissues, and finally to the bones. There are several facts in connexion with the causation of the disease which are of great interest when the disease is compared with actinomycosis in cattle. Bocarro states that the disease originates in wounds, sores and pricks of thorns, and that the points of the thorns of the Acacia Arabica have been found embedded in the diseased parts. The disease is common among the agricultural class, and in 90 per cent. of the cases observed in the Hyderabad Civil Hospital it occurred in the hands and feet. Dr. Vandyke Carter was the first to point out the resemblance of the pale particles to actinomyces.[7] He described a mycelial fungus and named it chionyphe Carteri.

Dr. Kanthack pointed out that if portions of the growth were placed in ether or chloroform, and afterwards well washed in caustic potash, small rounded bodies were left which showed rays under the microscope closely resembling the appearances in actinomycosis, and that the reaction of the fungus to staining reagents was identical with actinomyces.

FIG. 10.



Part of human foot with Madura disease.

Dr. Hewlett, under my directions, examined sections from a specimen of the disease in the foot, which I had received from Surgeon-Major Hatch, I.M.S., and found both filaments and clubs. These observations were published in THE LANCET of July 2nd, 1892. Dr. Boyce and Dr. Surveyor examined a number of cases and carefully studied the black and white varieties of the disease. In the black variety the particles were found to vary greatly in size, from that of a grain of gunpowder to that of a marble. If the particles were boiled for from a few minutes to one hour in concentrated caustic potash and then transferred to distilled water the brown colouring matter was removed and a mycelial fungus could be seen. This fungus consisted of large radiating and branched hyphæ, like those of a species of aspergillus or mucor. Sections of the white, fish-roe bodies showed, usually in the centre, numerous small, reniform, deeply-stained masses, surrounded by a radiate zone, with the presence of dwarfed, club-like elements resembling actinomyces. I am of opinion that the presence of the coarser septate mycelium of the black variety may be attributed to a mixed infection. Vincent in Algiers (1891-1893) succeeded in cultivating a micro-organism and showed that it was a new species of streptothrix. He published a very full account of his researches, illustrated with

[6] THE LANCET, Jan. 5th, 1895.
[7] THE LANCET, Feb. 13th, 1886.

a coloured plate, in the *Annales de l'Institut Pasteur*, March, 1894. In the same year Dr. Boyce forwarded to the civil hospital, Hyderabad, a number of glycerine-agar tubes for inoculation and these Dr. Keith and Dr. Bocarro inoculated with particles from fresh specimens of both the black and white varieties of Madura disease. From these inoculations Dr. Boyce and Dr. Surveyor were unable to cultivate the black fungus, but Dr. Boyce succeeded in obtaining one tube with white particles which was almost free from contamination and from this tube he succeeded in isolating a streptothrix. This fungus was similar to the streptothrix which Vincent had cultivated from a case of the white variety of the disease in Algiers.

Streptothrix Maduræ.—Vincent states that the streptothrix at first grew scantily in the ordinary culture media and in such liquids as Colin's solution. In broth, at the end of about a fortnight, there is a limited growth composed of small, round, greyish masses, and in sub-cultures the growth becomes more abundant. The little colonies float in the clear liquid when the tube is shaken and subside to the bottom when the liquid is at rest, while some adhere to the sides of the tube. They may be very small or attain the size of peas; after two months they acquire a reddish tinge. Later, on the surface of the liquid, there is a white efflorescence composed of spores. The streptothrix grows well in slightly acid infusions of hay or straw, the proportion of hay to water being 15 grammes to the litre. Vegetable infusions, made with carrots, turnips, and potatoes (20 grammes to 1000 of water), also are suitable media. The streptothrix grows at the temperature of the room, but best at 37° C. and with free access to air. Inoculated in the depth of gelatine there is a scanty growth in the track of the needle and on the surface; but it grows best in a nutrient medium, composed of infusions of hay or potato 100 c.c., gelatine 9 grammes, glycerine 4 grammes, and glycose 4 grammes. Gelatin is not liquefied. Ordinary nutrient agar is not a very favourable medium, but glycerine-agar and glycose produces an abundant growth of circular, projecting, shining colonies, slightly yellowish-white, which later become pink or bright red. When the colonies are numerous they remain small, but isolated colonies grow rapidly; they are depressed in the centre or umbilicated, and the central part remains white while the periphery becomes red. Later the culture loses its colour and becomes a dull white. The growth is very adherent to the surface of the jelly and very tough—almost horny. The streptothrix can be cultivated in milk and slowly peptonises it. It cannot be grown on blood serum or egg. On potato, on the fifth day at 37° C., there are little prominent colonies, slowly increasing. After a month the growth acquires a pale rose colour, which gradually increases and changes to orange or dark red. The colour is most intense on acid potato, and after a time an efflorescence or whitish dust appears on some of the colonies, consisting of spores. The growth is hard and friable. Rabbits, mice, guinea-pigs, and a cat were inoculated subcutaneously with particles from the disease or with cultures; but only a local nodule was produced, which after a slight increase subsided. Nocard confirmed these results. Intra-peritoneal and intravenous and subcutaneous inoculations in guinea-pigs, rabbits, pigeons, fowls, dogs, and sheep were negative; and no trace could be found of the cultures in any animal subsequently killed and examined. According to Bocarro, though fresh particles from the disease inoculated in rabbits and dogs gave negative results, inoculations of cultures in guinea-pigs, rabbits, monkeys, and rats produced a local tumour of slow growth, which on section had the character of the inoculated material.

From these experiments we must conclude that the disease has not been proved to be transmissible to the lower animals by either inoculation of the diseased tissue or of cultures of the streptothrix; and the exact relation to the disease of both the mycelial fungus and the streptothrix require further investigation. It must also be borne in mind in investigating the origin of Madura disease and actinomycosis that closely allied species of streptothrix have been isolated from air, soil, pus, and the contents of the stomach, and from a disease in cattle known in France as *farcin de bœuf*. For an account of these species I must refer to the researches of Gasparini, Sauvageau and Radais, Doria, Lehmann and Neumann, Gruber, Dunker, Rullmann, and Nocard.

DESCRIPTION OF COLOURED PLATE.

(Reproduced from Bacteriology and Infective Diseases.)

FIG. 1.—From a section of a portion of an actinomycotic growth removed from a boy during life. The tissue was hardened in alcohol and cut in celloidin. The section was stained with Gram's method and orange-rubin. × 50.

FIG. 2.—From the same specimen. A mass of extremely fine filaments occupies the central part of the rosette. Many of the filaments have a terminal enlargement. The marginal part shows a palisade of clubs stained by the orange-rubin. × 200.

FIGS. 3 and 4.—From cover-glass preparations of the ray-fungus teased out of the new growths produced by inoculation of a calf with pus from a boy suffering from pulmonary actinomycosis. Stained by Gram's method and orange-rubin. The threads are stained blue and the clubs crimson (*a* and *b*). In the younger clubs the thread can be traced into the interior of the club. In some of the older clubs the central portion takes a yellowish stain and in others the protoplasm is not continued as a thread, but is collected into a spherical or ovoid or pear-shaped mass. In others, again, irregular grains stained blue are scattered throughout the central portion. × 1200.

FIG. 5.—From a pure culture of actinomyces on glycerine agar. (*a*) A mass of entangled filaments, (*b*) branching filaments. Gram's method. × 200.

FIG. 6.—From a similar but older cultivation. (*a*) Chains of spores simulating streptococci, (*b*) a filament with spores. Gram's method. × 1200.

FIG. 7.—Pure cultivation of actinomyces on the surface of potato, showing a luxuriant sulphur-yellow growth composed of entangled masses of filaments and of spores. After three months' growth.

FIG. 8.—Pure culture from the same series on glycerine agar. In this case the culture remained perfectly white. The jelly was coloured reddish-brown. After fifteen months' growth.

NEUROLOGICAL FRAGMENTS.

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(*Continued from* THE LANCET *of Dec. 12th, 1896.*)

No. XVII.

CERVICAL FRACTURE-DISLOCATION CASES.—DESTRUCTION BY COMPLETE TRANSVERSE LESION OF THE CERVICAL CORD OF INTRINSIC AND EXTRINSIC ELEMENTS OF THE LOWEST LEVEL.—PARALYSIS "AT" AND PARALYSIS "BELOW" THE LESION.—MUTILATION OF THE NERVOUS MECHANISMS OF THE "FOUR SYSTEMS" (THERMAL, CIRCULATORY, RESPIRATORY, DIGESTIVE).—INTRA-CENTRAL INHIBITION.

I HAVE spoken[1] of the great number of symptoms in cervical fracture-dislocation cases and of their diversity; the complexity of the symptomatology is obvious. Besides, there appear during the course of the cases two complicating factors. High supervenosity from inefficient respiration and great heat will, so to say, traverse that part, the main part, of the symptomatology which is not, properly speaking, *caused by*, but is indirectly consequent on, the local negative lesion; more specifically, high supervenosity and great heat will over-stimulate at least some of the citerior centres and probably some of the ulterior centres of the lowest level. Here is an important matter; blood which is highly supervenous will strongly stimulate the respiratory (medulla) centre and the cardio-inhibitory (medulla) centre; it will (vide *infra*) act on the intestines; and it will stimulate sweat glands or their centres or both; these agencies will make the symptomatology vary in different stages. Now for the second complicating factor. The imperfect action of the organs of each of the "four systems" will no doubt complicate (directly or indirectly) the action of the organs of the other three systems. To give a very simple example of this kind of complication: distension of the abdomen (digestive system) will impede the action of the diaphragm (respiratory system) and will thus render the patient's breathing still more inefficient than it already is from the paralysis of his intercostal muscles. I shall in this Note for the most part ignore these two complicating factors.

The local crush of the cord destroys both intrinsic and extrinsic elements of the lowest level. For ease of exposition I will speak as if but one segment of the infra-phrenic cervical region was destroyed; fibres passing through the segment are destroyed at the same time. First for the effect of the injury on the proper elements of the segment. There is destruction of two anterior and of two posterior horns (some motor and sensory centres of what I called[2] the homologous series of centres of the lowest level) and of their

[1] THE LANCET, Dec. 12th, 1896.
[2] THE LANCET, Feb. 16th, 1895.

interconnecting fibres; these four centres and their interconnecting fibres are intrinsic elements of the lowest level. Now for fibres passing through the segment: some of them are intrinsic, others extrinsic of the level. There is destruction of fibres connecting higher (citerior) centres of the level with lower (ulterior) centres of it; there is, for example, destruction of fibres connecting the (medulla) respiratory centre, a superior centre of the level, with costal motor centres of the level (centres of the homologous series), for movements of the intercostal muscles; such fibres, since they interconnect centres of the level itself, are intrinsic elements of it.[3] Now for destruction of other fibres also passing through the segment which are extrinsic elements of the level; I mention some of them. There is destruction of fibres from ulterior motor centres of the level as they pass through the segment on their way, not to citerior centres of the lowest level, but to centres of a higher level of the cerebral sub-system; these are fibres of the pyramidal tract, fibres extrinsic upwards to motor centres of the middle level (Rolandic region). There is destruction of fibres of the direct cerebellar tract, sensory fibres extrinsic upwards to the cerebellum.[4] There is destruction of fibres of Goll's column and of Burdach's column, fibres extrinsic downwards from, respectively, the gracile and cuneate nuclei to the periphery.

I will illustrate more particularly, and with some recapitulation, the difference between destruction of intrinsic elements and destruction of extrinsic elements of the lowest level; both kinds of the elements to be dealt with are parts of what is morphologically the spinal cord; the former (centres) are elements of the anatomico-physiological community which I call lowest level: the latter (fibres) connect motor centres of this community with centres of a higher level.

There are two *kinds* of motor paralysis in the cervical fracture-dislocation case. There is (1) to use an elliptical expression "the motor paralysis at the lesion," from destruction of certain anterior horns of the segment crushed (intrinsic elements of the level); consequent on destruction of these lowest motor centres the comparatively few muscles they should innervate *are cut off from the influence of the whole of the central nervous system.* This paralysis, using clinical language, now rather old-fashioned, is "spinal paralysis" as certainly as is that in cases of progressive muscular atrophy (Duchenne-Aran type) or that in anterior polio-myelitis. There is (2) the motor paralysis from cutting across fibres of the pyramidal tract on their way through the segment crushed (fibres extrinsic upwards from ulterior motor centres to motor centres of the middle level, Rolandic region); most of the motor paralysis in the cervical fracture-dislocation case ("the motor paralysis below the lesion," another elliptical expression) is owing to the severance of these fibres; here the muscles concerned *are not cut off from the whole of the central nervous system;* they remain connected with their lowest motor centres, motor centres ulterior of the lesion, by fibres extrinsic downwards of the level. This, in clinical language, although the lesion is of fibres in the morphological mass, the cord, is "cerebral paralysis" as certainly as the paralysis of hemiplegia from lesion of the internal capsule is (the same tract higher up but further fed by fibres from bulbar and pontal centres of the lowest level and by fibres from other lowest level centres in the aqueduct of Sylvius). In both cases the lesion is of fibres extrinsic upwards of the lowest level, of a set of fibres connecting two levels, lowest and middle.

I will illustrate more definitely the difference between the two kinds of paralysis, making once more the entirely arbitrary supposition, simply for ease of illustration, that but one segment, the fifth cervical, is crushed. Then, adopting Starr's conclusions,[5] the muscles of the arm "paralysed at the lesion" will be "deltoid biceps, coraco-brachialis, brachialis anticus, supinator longus, supinator brevis, rhomboid, teres minor, pectoralis (clavicular part) serratus magnus." These muscles are cut off from the influence of the whole of the central nervous system ("paralysis at the lesion"), except, of course, in so far as some of them are also supplied by segments above and below the fifth. Certain other muscles of the arms, those of the hands for instance, are also paralysed, but these muscles are not cut off from the influence of the whole of the central nervous system; they remain connected with their anterior horns. This motor paralysis of the hands is "paralysis below the lesion"; it is, like that of the legs, owing to destruction of fibres of the pyramidal tract.

The extreme seriousness of the cervical fracture dislocation case is not owing to destruction of the centres of the segments crushed—although this by itself is a great calamity, since there results from it the paralysis elliptically called "paralysis at the lesion"—but to severance of fibres which pass through the segments, is owing to "cutting connexions." I am not referring only to the severance of fibres of the pyramidal tract, fibres extrinsic upwards, which severance disconnects ulterior motor centres of the lowest level from motor centres of the middle level, and thus produces the paralysis elliptically called "paralysis below the lesion," nor only to the cutting across of sensory fibres, also fibres extrinsic upwards, disconnecting ulterior sensory centres for the legs from higher levels, cerebral and cerebellar, nor only to fibres extrinsic downwards from some citerior centres, gracile and cuneate nuclei, to the legs. These disconnexions entail a terrible calamity, but as regards life, the most serious thing is the severance of certain fibres, extrinsic and intrinsic of the level, by which severance the nervous mechanisms of the "four systems" are mutilated. I shall in the remainder of this note speak of the several abnormal conditions (I have fancifully called them "sub-maladies") which are consequent on mutilation of the nervous mechanisms of these systems.

I submit that the scheme of Lowest Level is especially useful in the analyses we are about to attempt. It is manifest that we cannot study the sub-maladies mentioned as merely resulting from a local injury of the cervical spinal cord; in their analysis we are concerned both with citerior and with ulterior centres of the lowest level. Were we to consider also a symptom from the sexual system (priapism), symptoms from the urinary system, and from the system of the hind-gut (defæcation) we should have to deal with nearly all the centres of the lowest level, citerior and ulterior. There is more to be said in this regard. We have spoken of the condition of the pupils and of the eyelids, consequent on lesion of those fibres which after their emergence from the cord pass by way of the cervical sympathetic to certain parts of the ocular musculature (fibres extrinsic downwards); this involves consideration of healthy citerior centres for the circular fibres of the iris, because the pupils contract more when the sympathetic fibres (inhibitory) are severed and do not dilate in a dim light when shaded. Theoretically there should be a "salivary symptom" in cervical fracture-dislocation cases; the sub-maxillary gland continues to be supplied by chorda fibres from citerior centres, but is bereft of sympathetic fibres. However, I know nothing of this imagined symptom in cervical dislocation-fracture cases.[6]

As I have mentioned, some cases of fracture-dislocation vary very much in their course; I have pointed out that the symptomatology will be traversed by super-venosity and also that, instead of orderly coöperation and amicable antagonism between the organs of the four systems, each organ is more or less "pursuing its private ends." Thus the separate consideration of the "sub-maladies" as if each were an independent and unvarying thing, is, of course, an arbitrary proceeding.

For the proper analysis of so complex a symptomatology, a vastly greater knowledge of physiology than I possess is required. What is to follow must be taken almost as remarks on mere symptoms. But just as one who wishes to be a good musical performer practises scales, so he who wishes to be a good diagnostician must study mere symptoms. If the symptomatology of the cervical fracture-dislocation case were thoroughly and correctly analysed a valuable

[3] If the speculation I advanced in THE LANCET of Feb. 23rd, 1895, on the difference between respiration proper (organic service of the thoracic cage) and so-called forced inspiration (animal service of the thoracic cage) were proved, there will be also cutting across of other fibres to the costal motor centres—fibres of the pyramidal tract from motor centres of the middle level (Rolandic cortex). These fibres are for "voluntary" movements of the intercostal muscles (for "voluntary expansion" of the thoracic cage, for the so-called forced inspiration).

[4] Motor fibres interconnecting lowest motor centres and the cerebellum have not been found; this is, of course, an objection to the hypothesis I hold as to cerebellar influence upon the anterior horns (lowest motor centres), as explaining, for example, the rigidity in hemiplegia and the tremor and rigidity of paralysis agitans.

[5] Starr's table is given in Osler's *Principles and Practice of Medicine*, second edition, p. 819 and seq. Osler makes the remark: "Movements, not muscles, are localised in the central nervous system, a point carefully to be borne in mind by the student." I have often insisted on this; yet in the text I speak of muscles for convenience.

[6] We should have a scheme of the lowest level so that in fracture-dislocation cases and in other cases we might be helped in our analyses of the complex symptomatologies produced. I have made such a scheme, but it is too poor a thing to publish.

contribution would be made to neurology. Were it right to suggest work for other people to do, I would commend the study of this complex neurological problem to well-trained physiologists.

Thermal System.—To begin with, I quote authorities on the great difference in the thermic state of different patients who have undergone cervical fracture-dislocation.

Hutchinson writes[7]: "The general result of my examination [of notes of fracture-dislocations of the spine] has led me to believe that, although increase of temperature is the rule, it is liable to not infrequent exceptions, and that some of these are very remarkable. Nor have I found it at all easy to explain why this should be so, *why, in fact, we should have some cases of fracture of the cervical spine in which the patient becomes very hot, and others in which he becomes very cold.*" (There are no italics in the original.)

Weber[8] "has recorded cases where, after fracture of the cervical vertebræ (third, fourth, and fifth in one case, and third and fourth in the other) with severe lesions of the cervical cord, the temperature (in the axilla) reached 111° F. just before death, eight hours after the injury; while in the other case (taken in the rectum), immediately after death, and nineteen hours after the accident, it was 110°." [9]

So much for high temperatures; now for low temperatures. Jacobson[10] mentions a case recorded by Hutchinson[11] of a man aged twenty eight years, who had fractured the fifth cervical vertebra, the cord being crushed at this level, with a temperature of 95·8° in the rectum, twenty-four hours after the accident: just before death, five days after the accident, it was 95° both in rectum and axilla. "It is expressly stated that the patient was not during the greater part of the time suffering in the least from shock, and that though the face was with the rest of his body almost as chilly to the hand as a corpse, yet his lips, ears, and face were florid twenty-hours after the accident, 'of a good rosy colour' on the third day, becoming blue only during the last twenty-four hours of life." Jacobson gives details[12] of a case recorded by Nieden[13]; "fracture-dislocation of the first dorsal vertebra with crushing of the cord on this level, where there was progressive lowering of the temperature and pulse during the eleven days which intervened between the injury and death of the patient. Thus the temperature fell steadily from 98·6° on the third day to 80·6° at the time of death. In the same interval the pulse, which on the third day was 68, full and strong, became slower and less perceptible, falling to 30 before death."

I shall deal only with those cervical fracture-dislocation cases in which the temperature is very high. Of course this is a very arbitrary proceeding; it is one which shirks the difficulties presented by other cases in which, or at a stage of which, temperature is low or very low.

Donald MacAlister in his very valuable Gulstonian Lectures on the Nature of Fever,[14] re-published by Macmillan and Co., writes in the third lecture: "The thermal nervous system has three parts; let us call them briefly the thermotaxic or adjusting, the thermogenic or producing, and the thermolytic or discharging mechanism.[15] ..... In the ascending scale of evolution we seem to rise from the thermolytic to the thermogenic and thence to the thermotaxic nervous system." He regards fever "as a 'dissolution,' a progressive negative process" and recovery from fever as a process of re-evolution. His remarks on these matters are very interesting. In the cervical fracture-dislocation case the nervous mechanisms of all three parts of the thermal nervous system are damaged suddenly together: thus the "fever" produced, if I may call it a fever, will not have so orderly a course as fevers proper.

The muscles are the main parts concerned in thermogenesis; they, under the influence of the nervous system, unceasingly produce heat in entire and healthy men. I submit the hypothesis that in cervical fracture-dislocation cases, when the temperature is very high, as it is in many of these cases, the "muscles below the lesion," those connected with ulterior motor centres, produce much more than normal. Here, however, is a difficult question; the high temperature in cervical fractured-islocation cases may not signify increased thermogenesis, but only greater emission of heat. We cannot make calorimetrical researches on our patients to decide the question. We must bear in mind that from arterial relaxation, owing to severance of all fibres passing from the medulla vaso-motor centre (fibres extrinsic downwards) thermolysis will be greatly facilitated.

It must be borne in mind, as already urged, that there are in the cases under remark two very different kinds of paralysis. There is that "at the lesion" in which some few muscles of the arms are cut off from the influence of the whole of the central nervous system. No doubt these muscles cease, or soon cease, to produce heat. Although the amount of heat not produced consequent on these few muscles being bereft of influence from the central nervous system is a negligible quantity, the consideration of this kind of paralysis in comparison with the other kind in regard to the state of the thermal system of our patient is important for purposes of illustration. The other kind of paralysis, "paralysis below the lesion," is very different from that "at the lesion," the muscles concerned being in a very different case; the muscles in the "paralysis below the lesion" remain connected with their anterior horns (some lowest motor centres). These muscles never move (molar movement), but this is not, I submit, because their anterior horns are functionless, but because the higher levels can, on account of the transverse cervical lesion, no longer "get at" these lowest motor centres to put them into activity. But may not these uninjured ulterior motor centres, or some elements of them,[16] continue so to act on the muscles they supply as to cause them to produce heat? My speculation is that in the cases with a high temperature these centres over-act to that end, and cause the muscles to produce more heat than normal. (Once more I admit the inadequacy of this exposition of the state of the thermal system in cervical fracture-dislocation cases; cases with an abnormally low temperature not being taken into account.)

It is so important with regard to the thermal system, to distinguish the paralysis in which muscles are cut off from the whole of the central nervous system, from that paralysis in which they are not cut off from the whole of that system, but only from its higher levels, that at the risk of tedious iteration, I will consider the matter from another point of view. Suppose for mere illustration's sake, that it is possible (of course, it is not) to limit in the case of a dog the action of curara to the motor nerve endings of what we may call the same muscles as those which in the cervical dislocation-fracture case of man are "paralysed below the lesion"; these muscles in the curarised dog would, so long as the poisoning lasted, be cut off from the influence of the whole of the central nervous system and would produce no heat; the animal would be rendered "cold-blooded," except for the heat produced by other muscles, "muscles above the lesion," the motor nerve endings in which we are imagining to be spared from the action of curara, and by the liver and other parts of the body. And thus the muscles of which the motor nerve endings are poisoned would, to borrow a term and a notion from Hutchinson, become "refrigerators" to the rest of the body. But, I repeat, in the cervical fracture-dislocation case of man, "the muscles below the lesion" are in a very different case since they remain connected with their lowest motor centres, although these centres are, by severance of fibres of the pyramidal tract, disconnected from motor centres of the middle level (Rolandic cortex). Could we in the case of the dog curarise only the motor nerve endings to the same few muscles, as those which are supplied in the case of man by the crushed sub-phrenic cervical anterior horns, or, let us say, referring back to a former illustration, those muscles which are, according to Starr, supplied by the fifth segment, which we shall suppose is the only one crushed in man, there would be very little, next to no, diminution in the dog's production of heat, the amount of muscle cut off from the central nervous system being so small. But in this imaginary case of very localised action of curara in the dog, there is not a transverse lesion of the cervical cord at the level of the fifth segment as there is in the fracture-dislocation case of man.

I submit the hypothesis that the ulterior motor centres in cervical fracture-dislocation cases of man with a high

[7] THE LANCET, May 22nd, 1875, p. 714.
[8] Translations of the Clinical Society, vol. i., p. 163.
[9] Injuries of the Back, by Jacobson, Holmes and Hulke's Surgery, Taird edition, vol. i., p. 654.
[10] Op. cit. p. 654.
[11] THE LANCET, May 22nd, 1875, p. 714.
[12] Op. cit., p. 655.
[13] Transactions of the Clinical Society, vol. vi., p. 75.
[14] THE LANCET, March 12th, 19th, and 26th, 1887.
[15] See also Hale White, Brit. Med. Jour., April 28th, 1890.

[16] "Lukjanow, Mosso, and MacAlister have shown that probably the thermogenetic function is distinct from the motor function of muscle." *A Discussion on Pyrexia and its treatment*, by Hale White.—Brit. Med. Jour., Nov. 17th, 1894.

temperature continue functionable for thermogenesis, and that from section, by the infra-phrenic transverse lesion of the cord, of "inhibitory nerves" of the thermal system coming down from some centres of higher levels, or from some citerior centre of the lowest level (thermotaxic mechanism of MacAlister) to these ulterior motor centres, they, or some elements of them, so rise in activity that great increase of thermogenesis by the muscles they remain connected with occurs. The suggestion is that the very high temperature in some cervical fracture-dislocation cases does signify greater thermogenesis, although no doubt there is greater thermolysis too. Cases with a high temperature, in which death occurs in a few hours or days, have been so far dealt with. I shall now speak of the case of a man who lived many years after cervical fracture-dislocation.

There is repetition in the foregoing from a lecture entitled Neurological Fragments, which I published in THE LANCET of March 5th, 1892. I quote the following from that lecture: "A patient of the late Mr. Hilton lived fourteen years after a fracture-dislocation crushing the cervical cord across below the emergence of the phrenic nerves. Did not the 'muscles below the lesion' in this man produce heat when they were 'paralysed'? If they did not, they would have had to share the heat produced by the 'muscles above the lesion' (and of course by other parts of the body), and would thus be refrigerators." If in Hilton's patient[17] there was excessive thermogenesis soon after the accident, we must suppose that this greatly increased generation of heat continued for a short time only. It is not likely that the patient had a very high temperature for fourteen years, and it is not likely either that all the muscles "paralysed below the lesion" produced no, or very little, heat during that time. The patient was twenty-one years of age at the time of the accident. He was taken about on a four-wheeled cart by a boy.[18] "The patient used to amuse himself or earn his living by making copies of engravings with his mouth."[19] So far as I can judge by the report, this patient was by no means "cold-blooded" and made the best of a sadly maimed life. Consider also the case of B. G., a dorsal case, narrated in Note XVI., THE LANCET, Dec. 12th, 1896. She certainly was in no degree "cold-blooded"; her temperature was occasionally raised (102° F., once 103·5°), but never persistently raised; sometimes it was 97°; she was cheerful and occupied herself in needlework and reading.

I am dealing, I repeat, in this note with cervical fracture-dislocation cases in which death occurs in a few days. Probably when the patients live a very long time, as did Hilton's patient, or in chronic dorsal cases like that of B. G., the ulterior motor centres become a little more nearly normal in function; very possibly small vaso-motor centres in the ulterior part of the lowest level gain greater power and thus thermolysis will become more nearly normal. More generally it is probable that when a patient lives a long time the part of his lowest level below the transverse lesion of the supra-lumbar cord (ulterior part) recuperates to some little extent.[20] In the case of the girl B. G., the catamenia were normal; the return of her knee-jerks probably showed some recuperation of the anterior horns concerned; in her, however, the lowest level nervous mechanism for the bladder, which on her admission was so far effective that the bladder emptied itself at intervals, failed later. In her case, however, possibly the transverse lesion was not completely transverse. In Hilton's patient there were other phenomena showing functionability of some ulterior centres which I shall mention when speaking of the state of the Sexual System.

The Circulatory System.—There is cutting in two of fibres descending in the cord from the accelerator[21] (medulla) centre (fibres of the lowest level extrinsic downwards) and also of fibres from the great (medulla) vaso-motor centre (also fibres extrinsic downwards). (I have spoken of severance of the latter as facilitating thermolysis.) The pulse is infrequent and relaxed (low tension). We have here to bear in mind that the cardio-inhibitory centre of the lowest level is intact, and that the fibres (extrinsic downwards) from it by way of the vagi to the heart are so too; possibly when respiration becomes very inefficient the heart may beat still less frequently from stimulation of that centre by supervenous blood, and, perhaps by great heat also, until the time comes when the cardiac musculature itself succumbs to those agencies.

The difficulty is to explain how it happens that there is infrequent pulse in the cases remarked on. Landois and Stirling[22] write: "The accelerating centre is certainly not continually in a state of tonic excitement, as section of the accelerans nerve does not cause slowing of the action of the heart; the same is true of destruction of the medulla oblongata or of the cervical spinal cord. In the latter case, the splanchnic nerves must be divided beforehand, to avoid the slowing effect on the action of the heart produced by the great fall of blood pressure consequent upon destruction of the cord, otherwise we might be apt to ascribe the result to the action of the accelerating centre, when it is in reality due to the diminished blood-pressure" (Cyon).

The following is from Hutchinson's article *On Dislocations and Fractures of the Spine, London Hospital Reports*, vol. iii., 1866, pp. 365–6. I give this quotation partly because it contains remarks on a tract of hyperæsthesia which is sometimes a great addition to the patient's misery, and partly because the quotation deals in a striking way with the state of the circulatory system in some cases of cervical fracture-dislocation. Hutchinson writes:[23] "Unless the injuries be in the cervical region, no influence upon the heart's action is observed. When high up a very peculiar condition results. The pulsations are diminished in frequency and the pulse (from the paralysis of the artery) is remarkably full and large. Your first impression is that it is much slower than you find it to be on counting, at least, this has generally been my experience. It feels remarkably deliberate. The manner in which the heart seems exempted from all share in the patient's general excitement is sometimes very curious. I recollect well going to the bedside of a poor fellow who had been admitted a few hours before with a fracture of the fifth cervical. It was one of those cases in which the boundary tract of skin between that quite paralysed and that enjoying perfect sensation, was excessively tender. He was screaming with pain, and his countenance expressive of the utmost suffering and anxiety, yet his pulse, which we might have expected to be quick and excited, was slow, full and deliberate, about 48 in the minute. Although the pulse after injuries to the cervical cord becomes slow, it does not intermit."

Considering the complex situation of the circulatory system—severance of the accelerator fibres (which severance in a lower animal the physiologist tells us does not slow the heart), the severance of all fibres from the medulla vaso-motor centre, the intactness of the cardio-inhibitory centre and the possibility that this centre is over-stimulated when the blood has become very venous, and the possibility that minor vaso-motor centres below the transverse cervical lesion are also then stimulated—I refrain from attempting an explanation of the infrequent action of the heart in cases of cervical fracture-dislocation.

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[17] Hilton recorded the case in his *Rest and Pain*." I quote from the second edition by Jacobson, p. 102 and seq. *The heading of the report of the case is*, "*Case of Injury to fifth, sixth, and seventh Cervical Vertebræ: Paralysis and Loss of Sensation in the Upper and Lower Extremities: the patient lived fourteen years, and then died from another accident.*"

[18] As to the cause of his death: "He was upset, and, as he could not put out his hands to save himself, he fell with great violence upon the ground; this led to some chest affection which occasioned his death in a few days."—Hilton, op. cit., p. 105.

[19] Hilton, op. cit., p. 104.

[20] In a lower mammal there will presumably be after a transverse supra-lumbar lesion considerably more recuperation of the ulterior part of the cord than in the case of man. I take the following from Landois and Stirling's Physiology, Fourth Edition, vol. ii., p. 786. I suppose the intercalation marked by square brackets in the original is by Stirling. "In mammals (dogs) the following reflex acts are performed by the posterior part of the spinal cord, even after it is separated from the rest of the cord: [In mammals, however, the cord takes a long time to recover from the shock of the operation compared with the time required for this result in cold-blooded animals.] Scratching with the hind feet a part of the skin which has been tickled (just as in intact animals); the movements necessary for emptying the bladder and for defecation, as well as those necessary for erection; the movements necessary for parturition (*Goltz, Freusbery, and Gergens*). Coördinated movements do not as a rule occur simultaneously in portions of the spinal cord lying widely apart after removal of the medulla oblongata. According to Ludwig and Owsjannikow, the medulla oblongata perhaps contains a reflex organ of a higher order which forms, as it were, a centre for combining through the medium of the nerve fibres the various reflex provinces in the spinal cord." I should suppose this centre in the medulla to be the coördinating centre of the whole of the lowest level—the "highest centre" of the lowest level.

[21] In the dog the accelerator fibres "leave the spinal cord as medullated fibres by the anterior roots of the second and third dorsal nerves, and it may be by the fourth and fifth nerves as well." Landois and Stirling, Physiology, fourth edition vol. ii., p. 827. Although I use the term "accelerator *centre*," Landois and Stirling only say, "It is more than probable that a centre exists in the medulla oblongata which sends accelerating fibres to the heart."

[22] Physiology, vol. ii., p. 829. Fourth edition

[23] *Effects of Injuries to the Cord upon the Heart*

The Respiratory Nervous System.—There is cutting off of the costal motor centres from the Respiratory centre, a Superior centre in the bulbar region of the level, by severance of intrinsic fibres of the level; the laryngeal and phrenic motor centres remain in connexion with that Superior (respiratory) centre by intrinsic fibres. As venosity increases the respiratory centre being strongly stimulated by super-venous blood, and perhaps by great heat too, the diaphragm will act more and thus for a time there will be some compensation for the effects on respiration of suddenly occurring paralysis of the intercostal muscles.

Paralysis of the intercostal muscles alone or of the diaphragm alone does not seem to greatly trouble a man who is, for other reasons, obliged to lie quiet in bed; there seems to be no reason why in those circumstances he should not live for years, in spite of either paralysis. But in the cervical fracture-dislocation case the paralysis of the intercostals is suddenly produced, a very important thing. Besides, as we have seen, there is mutilation of the nervous mechanisms of the three other systems; there is much more than paralysis of the chest-walls to cause death. I say this because whilst the abnormal state of the respiratory system properly attracts great attention, not enough attention is given to the abnormal state of the other three systems.[24]

The Digestive System.—In some cervical fracture-dislocation cases there is great distension of the intestines and constipation; I speak of the distension only, although the interpretation of the constipation is similar. In the analysis of this sub-malady we require to take into very particular account certain citerior and certain ulterior centres of the lowest level, both of which are uninjured. The intestines (I here exclude the hind-gut[25] from consideration) have two direct sources of innervation from centres of the lowest level; there is one, motor, from a centre of the medulla region of the level, by way of the vagi, and there is another, inhibitory, by way of the splanchnic nerves, from centres of the dorsal region of the level (in the dog by way of the sixth and some lower dorsal roots, perhaps from the intermedio-lateral tract, which Mott thinks gives off visceral fibres). I suggest that the centre in the medulla region of the level is not only motor, but that it has also a certain inhibitory function of which I go on to speak. In an entire man I suppose that the two sets of centres of the level, medulla and dorsal, being connected by intra-central fibres, are in a relation of amicable antagonism, and that the centre of the medulla region of the level can not only act motorily upon the intestines by way of the vagi, but that, by the intra-central fibres suggested, it continuously slightly inhibits the "dorsal centres" which by way of the splanchnic nerves are inhibitory of intestinal movements; there is inhibition of inhibitory centres. When in an entire man the medulla centre comes into activity for defæcation, or rather for intestinal action preparatory to that of the hind-gut, two things, according to the speculation advanced occur; there is direct motor action of the medulla centre upon the intestines by way of the vagi, and there is also by that medulla centre so much greater inhibition than what I have spoken of as slight and continuous, of the inhibitory dorsal centres that they cease altogether to inhibit the intestines and thus the gut is *surrendered to* the direct vagal motor influence. In other words, there results from action of the medulla centre a direct "making go" of the intestines and indirectly a "letting go" of them. So much for the entire man; next for the man whose central nervous system has been cut in two at the point mentioned (infra-phrenic cervical cord).

In the cervical fracture-dislocation case there is a complete transverse lesion of the cord between what I now call the citerior centre for the intestines and the ulterior centres for them; and certainly in many cases great distension of the abdomen does occur, often to such an extent as to be a very serious addition to the patient's misery.[26] How does this distension result from the infra-phrenic cervical transverse lesion of the cord—from a *negative* lesion of that part? It does not result directly from that lesion. My speculation is that the negative transverse lesion divorces the medulla centre from the dorsal centres by cutting across fibres (intrinsic elements of the level) which connect the two—fibres from the centre of the medulla region of the level by which in an entire man that medulla centre slightly inhibits continuously, and occasionally inhibits strongly, the dorsal inhibitory centres. In the fracture-dislocation case the citerior centre has become in effect motor only; that is to say, the inhibitory part of it can no longer act on the ulterior dorsal centres to compel them to cease to inhibit the intestines; thus the intestines are not surrendered to the action of the motor part of the citerior centre. Indeed, the ulterior centres in question, being no longer inhibited, rise in inhibitory power upon the intestines and keep them dilated, so that motor action upon them by the vagal fibres from the citerior (medulla) centre is ineffective. This is making the assumption that the (dorsal) ulterior inhibitory centres when themselves no longer inhibited can overpower by their enhanced inhibitory influence the motor action upon the intestines of the (medulla) citerior centre.[27]

I neglected in the foregoing remarks on the digestive system the complications induced by great venosity, which may become great in the cases under remark. It is said that stimulation of the splanchnic nerves causes peristalsis when the circulation of the blood in the capillaries of the intestines has become venous.

The Sexual System.—There is, I believe, a dislike to the supposition of a hierarchy of inhibitory centres, but the case of cervical fracture-dislocation supplies us with one symptom, priapism,[28] which I submit is difficult of interpretation on any other supposition than that of removal of inhibition from a centre which is itself inhibitory. In priapism there is dilatation of the arteries of the penis; during erection of the penis in entire men its arteries are inhibited (Eckhardt) by over-activity of a

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[24] I believe that paralysis of the intercostal muscles is often overlooked in patients who are bedridden or who lead a very sluggish life indoors; indeed, it has to be looked for as the patient when obliged to lie quiet in bed may suffer very little indeed from it and may exhibit no signs of venosity. I have seen it in a case of disseminated sclerosis. Some years ago my then house physician at the London Hospital, Dr. Howard Sturge, told me that a woman's breathing became abdominal when she was under chloroform, a great change from the normal manner of respiration of her sex. I have seen this abdominal mode of breathing in surgical anæsthesia several times since, as I have mentioned (No. XV., THE LANCET, Feb. 23rd, 1895, Footnote 6), both in men and women; there being paralysis of the intercostals, the chest sinking in inspiration. I am not speaking generally of "defective respiration" but of the breathing being solely diaphragmatic, consequent on paralysis of the intercostal muscles. Sometimes in men the respiration under chloroform is almost solely costal. Much will, I suppose, depend on the stage of anæsthesia. I learn from Dr. Hewett's very interesting work, *Anæsthetics and their Administration*, p. 219, that "Snow stated that thoracic movements usually cease before abdominal." We must remember that the diaphragm alone can raise and evert the lowest ribs so that their movement is no proof that some of the intercostals escape when the higher intercostals do not act. The respiration may become solely abdominal in coma, even in women, from other causes than chloroformisation or etherisation.

[25] The hind-gut is under different nervous government. In this note I omit consideration of a symptom, incontinence of fæces, referable to this part of the intestinal tube. (See Hutchinson, London Hospital Reports, vol. iii., 1868, pp. 366-7.) Nor shall I speak of the vesical apparatus (I again refer to Hutchinson, op. cit., pp. 367-8). What he then wrote was written before the days of antiseptic surgery.

[26] Properly there is inaction of the circular fibres of the intestines from strong inhibition of them, so that gases accumulate.

[27] It has long been a custom with some prescribers to add a little belladonna to aperient pills. I suppose this drug facilitates peristalsis by reducing the potency of the inhibitory fibres of the splanchnic nerves, and possibly also by stimulating the vagus centre, or, it may be better to say by stimulating the centre in the medulla from which come the motor fibres which pass by way of the vagi to the circular muscular coat of the intestines. It occurred to me that this drug should be useful in the "distension" spoken of in the text; by partially paralysing the inhibitory fibres of the splanchnics, the vagal fibres would then be less opposed in their action on the circular muscular coat of the intestines. I saw a patient with Mr. Wreford who had essentially the symptomatology of a cervical fracture-dislocation case but from disease; the patient's abdominal distension was much reduced when he was taking belladona which I advised for the theoretical reasons mentioned. Dr. James Taylor saw this patient with us and agreed that improvement attended the use of the drug.

[28] There is not, or there is not commonly, more than turgescence of the part (when the catheter is passed the organ becomes more turgid). If the muscles which on contraction impede exit of blood from the penis are paralysed, we could not expect there to be such priapism as occurs in normal erection or in the so-called idiopathic priapism of surgeons. But the ulterior centres of the lowest level for the muscles in question are intact, and although they are cut off from higher levels these centres, perhaps, sometimes come into action and produce muscular contraction. In a case (*Fracture-Dislocation between the Fifth and Sixth Cervical Vertebræ.—Complete Paralysis of all Nerves below the Fifth Cervical.—Death*) recorded by Thorburn (Surgery of the Spinal Cord," p. 8), "The penis was subject to frequent erections with seminal emissions." This patient died twenty-one days after the accident. We rarely see—I never saw—a case of cervical fracture-dislocation in which the cervical cord is crushed completely across in which the patient lived for years. But such a case, mentioned earlier in the text when speaking of the thermal system, is recorded by Hilton ("Rest and Pain," second edition, by Jacobson, p. 102 *et seq.*); the patient lived fourteen years. Priapism and seminal emissions occasionally occurred. Hilton wrote, p. 104, *op. cit.* (from notes taken "during the latter period of the patient's life"), "erections of penis are frequent, and last a quarter of an hour, with slight escape of seminal fluid occasionally." (Priapism occurs in cases of transverse lesions of the cord lower than its cervical region.)

centre in the sacral part of the cord (as I should say in the sacral region of the lowest level) giving off the nervi erigentes. But in entire men there is, neglecting obvious occasional exceptions, flaccidity of the organ, and thus I assume that the sacral centre mentioned is in them continuously kept down (inhibited), either by a medulla centre of the level (and if so, by intermediation of fibres intrinsic of the level) or by a centre of some higher level (and if so, by intermediation of fibres extrinsic upwards of the level). After the occurrence of the transverse lesion of the cord in cervical fracture-dislocations priapism occurs, and it lasts for a time after the accident. Now this state of the penis is consecutive to a *negative* lesion anatomical miles above the now over-acting sacral centre. Surely there is here something "taken off" that sacral centre—no longer inhibition of a centre itself inhibitory. (It is important to note that priapism may be present during "shock" in cervical fracture-dislocation cases (Hutchinson).) Here is another illustration of the principal spoken of at the beginning of Note XVI.[29] Here again is a problem in physiology. The sacral centre is untouched by any pathological process or injury; that centre is simply "let go."

I submit that the hypothesis of intra-central inhibition applies more widely in the lowest level than as illustrated by the two symptoms of the fracture-dislocation case, distension of the abdomen (digestive system) and priapism (sexual system). That the cardio-inhibitory centre reins in the heart by the vagi is accepted doctrine, but I submit the speculation that this centre also continuously inhibits the accelerator centre. On this hypothesis, increased activity of the cardio-inhibitory centre in an entire man makes the heart beat less frequently by two modes of action: by direct action on the heart by way of the vagi and by greater inhibition of the accelerator centre. I will illustrate this hypothesis by applying it to the interpretation of a well-known nervous malady. In Graves's malady the great frequency of the pulse, to limit attention to that symptom, has been (Sattler) ascribed to lesion of the cardio-inhibitory centre. Adopting the speculation that there is a negative state of, or of much of, this centre, I submit that the heart beats more frequently, not only because it is less inhibited by way of the vagi, but also because the accelerator centre, not being inhibited, or being less inhibited than normally, the cardio-inhibitory centre is "let go" to act more on the heart. On the supposition made, the increased frequency of the pulse in Graves's malady is of two-fold origination from one negative lesion.

It may be said, of cases of Graves's malady in which the pulse is not very frequent, that loss of inhibition on the heart alone is enough to account for the greater rate. Sir William Broadbent writes,[30] speaking of Graves's malady: "The pulse is seldom under 100 per minute, often 120 or over, sometimes 160 to 200. In a case recently under observation the pulse was never under 160 for many weeks, and in paroxysms of palpitation it sometimes numbered 240 for several days, reaching at times 300." Would the higher rates[31] Broadbent mentions be owing to cessation of inhibition on the heart alone? Broadbent, in continuation of the observations quoted, writes: "The beat is sudden, sharp, and vehement; and its very frequency renders it short. The artery has not time to subside, but, though it is full between the beats, there is no peripheral resistance and no real pulse-tension."

The accelerator centre in healthy people is not, according to physiologists, in continued activity; the sacral centre in healthy people is not, so far, at any rate, as the arteries of the penis are concerned. We might infer this from the flaccidity of the penis, except on particular occasions; it is said that section of the nervi erigentes makes no change in the state of the organ, although excitation of the peripheral ends of these nerves produces turgescence of it. And although the pulse is infrequent in many cases of cervical fracture-dislocations the physiologist tells us that section of the accelerans nerve does not slow the heart (see quotation from Landois and Stirling in a footnote to an earlier part of this Note) and yet excitation of its peripheral end makes the heart beat more frequently. It may be that in healthy men the accelerator motor centre only comes into increased activity on the diminution of inhibition of it, just as, to illustrate by an abnormal state, in the fracture-dislocation case the arteries of the penis are dilated and the organ thereby made turgid only on the taking off of inhibition from the sacral inhibitory centre, which gives origin to the nervi erigentes.[31]

I will now remark on the indefinite meaning of the word paralysis in some of its applications. In the cervical fracture-dislocation case the "paralysis at the lesion" is "spinal," the "paralysis below the lesion" is mainly "cerebral"; the two paralyses are (vide *supra*) of very different kinds. And in reference to the illustration from the effects of mutilation of the nervous mechanism of the digestive system, it is from a scientific standpoint erroneous to say "the intestines are paralysed"; they are inactive, but the medulla centre can still act upon them by the vagi although it effects nothing, and for the rest of the condition they are kept dilated by abnormally high inhibition; there is simply cutting of connexions between two centres for the intestines, the centres themselves being intact. It is for this reason that I have sometimes used the term "field of a symptom." We cannot, to take another illustration, say that the iris is paralysed in the cervical fracture-dislocation case; the pupil contracts to light and during accommodation, but fails to dilate in a dim light when shaded (Hutchinson); the iris is "the field of a symptom." The heart is one of the parts of the body which has "double different innervation"; it is in the fracture dislocation case cut off from the accelerator centre, but remains connected with the vagus centre. To say that it is, or rather that it is partially, paralysed, is misleading, especially considering retention of its inherent power of acting.

I have to thank my friend, Dr. Rose Bradford, for looking over the foregoing.

[29] THE LANCET, Dec. 12th, 1896.

[30] The Pulse, p. 89.

[31] Lauder Brunton, Pharmacology, Therapeutics, and Materia Medica, Third Edition, p. 288, writes: "In man the effect of the vagus on the heart is intermediate between that of the rabbit and dog; so that if the normal pulse is between 70 and 80 in the minute, it rises to between 140 and 180 when the vagus is paralysed by atropine (Van Bezold)."

[31] It occurred to me that if the hypothesis of intra-central inhibition, as thus applied in the case of the heart, were valid, excitation of the central end of the superior laryngeal nerve might make the heart beat less frequently by acting on, and increasing the power of, the cardio-inhibitory centre *when the vagi are divided*; for according to that hypothesis increased action of the cardio-inhibitory centre would inhibit (or inhibit more than normally) the accelerator centre. Some experiments on dogs which Dr. Risien Russell made for me show that there is no such result from that excitation in those circumstances.

A NOTE ON THE OCCURRENCE OF METRORRHAGIA AFTER THE MENOPAUSE IN CASES OF OVARIAN TUMOUR.

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DURING the years of menstrual life—that is to say, from the age of puberty, which may be taken as about fifteen years, up to the menopause, which is normally established between the age of forty-five and fifty years—the influence on menstruation exerted by the development of an ovarian tumour is well known. In about one-third of all such cases menstruation is unaffected: as regards the remainder, in the majority there is a tendency in the direction of amenorrhœa, the periods occurring either less frequently or the quantity lost each time becoming diminished, or both these conditions may be combined. In a minority of cases the development of an ovarian tumour is marked by the occurrence of menorrhagia. When, however, we come to inquire about cases where an ovarian tumour commences to develop *after* the menopause, as to whether hæmorrhagic discharges from the uterus may be caused by the ovarian tumour and be rightly regarded as symptomatic of it, we find little or no information on the point in the majority of books to which reference would most naturally be made. Thus, for instance, in the works on the "Diseases of Women" by Barnes, Thomas, Hart and Barbour, and Skene there appears to be no notice of the point, and the same applies to several other works. In West and Duncan's "Lectures on the Diseases of Women" there is an analysis of ninety-four cases of ovarian tumour with reference to the way in which menstruation was affected. It is merely stated there that "in seven

cases menstruation had ceased before the disease began." Similarly in the "System of Gynæcology" by Allbutt and Playfair recently published there is an analysis of 118 cases as regards this point, and it is mentioned that twenty were cases before puberty or after the menopause, apparently implying that no menstruation or pseudo-menstruation was to be expected as the result of the growth of the tumour in cases of this kind. It may fairly be concluded that the occurrence of bleeding from the uterus after the menopause in cases of ovarian tumour is a somewhat rare event. That this symptom may occur is, however, mentioned by Pozzi in the following passage: "After the menopause congestive phenomena have been noted in the uterus leading to the re-appearance of a more or less irregular bloody discharge, which makes the patient believe menstruation has returned." At this passage there is a reference to a paper by Terrier in the *Revue de Chirurgie*, 1884, p. 1, but on looking up this paper it appears that he is speaking of the appearance of bleeding subsequent to the operation for removing the tumour, which is quite a different thing. The passage by Terrier is as follows: "To resume, in women already aged, accustomed, so to speak, to the menstrual flow, the periods have a certain tendency to re appear after the removal of both ovaries. But this red discharge only lasts a few months, and is not slow to disappear altogether."[1] In Garrigues' "Diseases of Women," 1894, p. 565, the point in question is clearly but very briefly mentioned. He says: "On the other hand, even after the menopause, new hæmorrhagic discharges from the uterus may occur."

A special importance attaches to the causes of bleeding after the menopause, since in such a large proportion of cases, as is well known, this symptom is due to the presence of a malignant growth at some part of the genital tract. It is interesting, therefore, to keep in mind that this symptom may in rare cases be due to the fact that an ovarian tumour is in process of development. While the tumour is still small, especially in a very stout patient, the occurrence of bleeding after the menopause may not improbably excite a suspicion of cancer. Without doubt in all such cases the possibility of the presence of cancer should always be thought of first, but when cancer has been excluded by careful and repeated examination—and in some cases this is only possible after dilatation of the cervix—it is satisfactory to bear in mind that there are causes for metrorrhagia after the menopause other than cancer, and that the development of an ovarian tumour is in rare instances one of them. The following case is an example of it.

A woman aged fifty-four years was admitted into the London Hospital under my care on Jan. 6th, 1896. She was a widow and had had seven children. She was sent to me by Mr. W. H. Piercy Fox. She had first noticed a swelling in the abdomen about six months previously, but she thought that it might have been present longer without her noticing it, as she was very stout. The swelling in the abdomen had increased very rapidly, she thought, during the last six weeks, so that, in her opinion the abdomen was now twice the size it was three months before. For the last three months she had suffered very much from dragging pains and general discomfort in the abdomen with dyspnœa. She was only fairly comfortable when lying on her right side. About three years previously the catamenia ceased, and she "saw nothing" for two years. There was then a period of bleeding, some blood coming away daily for six months. Then there was an interval of three months without bleeding. During the last month there had been a continuous red discharge daily. Up to three years previously she had been regular. She had "suffered from her chest and heart" for some years, with a good deal of shortness of breath. On examination the physical signs were those of an ovarian tumour reaching six and a half inches above the umbilicus. The circumference of the abdomen was forty-five inches at the umbilicus. On vaginal examination some brown discharge was seen about the external genitals, and the speculum showed some sanious discharge in the external os, but the cervix appeared normal. The sound passed three inches. Tilting the uterus with the finger gave one the impression that it did not form part of the large tumour in the abdomen.

On Jan. 23rd the patient was anæsthetised with the A.C.E. mixture and the abdomen opened by the usual incision. On opening the peritoneum a good deal of free fluid was seen; this was soapy and of thick consistence, and at once suggested that the cyst had burst, as was found to be the case. Most of the loculi of the tumour were small, and the size of the tumour could not be materially reduced by puncturing with the trocar. The incision was therefore extended above the umbilicus, and the tumour removed practically entire. An interesting point was the presence of recent adhesive peritonitis generally over the intestines and, in fact, over whatever part of the peritoneal surface came into view. The patient had had no acute symptoms before the operation, no rise of temperature, acceleration of pulse, vomiting, or more pain than the mere distension of the abdomen would sufficiently account for, and she walked to the operation table. Yet the cyst had burst and the extravasated contents had set up the general adhesive inflammation of the peritoneum above described. I had a similar case about five years ago, where, in spite of the rupture, there were no symptoms. In the present case the peritoneum was irrigated with warm saline fluid, and, a Keith's tube having been inserted, the rest of the wound was closed in the usual way. The tube was removed on the third day, and the patient made an uninterrupted recovery.

Apart from the bursting of the cyst before operation, an interesting point in the case is the return of a sanguineous vaginal discharge after complete cessation of the catamenia for two years. Generally of course after so long a period of amenorrhœa the re-appearance of blood suggests malignant disease of the uterus; but so far as could be ascertained, without dilating the cervix, the uterus in this case was perfectly healthy. It seems certain that the metrorrhagia was to be accounted for by the development of the ovarian tumour exciting a sympathetic congestion of the uterine mucous membrane. I have seen the patient several times during the past year, and since leaving the hospital she has never had any return of the sanguineous discharge, and she remains quite well.

Harley-street, W.

[1] Revue de Chirurgie, 1882, p. 367.

CASES OF STREPTOCOCCUS INFECTION.[1]

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WHERE it is practicable my endeavour is to make an efficient bacteriological examination of every case that possesses evidence of a bacterial nature. The result of an investigation of this kind sometimes actually makes the diagnosis and at other times leads to its confirmation. Consequently, it has a marked influence upon the prognosis and treatment even in the course of ordinary clinical surgery. There can be no doubt that it is an addition to the task of ordinary hospital work, but as experience increases the burden decreases and this collection of evidence becomes part of the ordinary routine work. In cases that are to be treated by antitoxins or in those that are to be published concerning their use or otherwise this examination is a *sine quâ non*.

The histories of the following patients are selected out of a series of cases and they may prove of interest at the present time. In each of the six cases that are reported a virulent streptococcus pyogenes was found. Three of these were treated by the antistreptococcic serum as well as by operative and antiseptic surgical methods. One case was treated by the anti-strepticoccic serum alone. And two were treated by operative and antiseptic surgical procedures alone, which prove that properly conducted surgical means can cure even when the patient suffers from a severe streptococcus infection, whether that infection is pure or mixed. Therefore when a case is treated surgically as well as by the injection of the antitoxin it must not be too hastily assumed that the latter was the cause of the cure.

When reporting such cases as these it seems to me very important to state whether the infection was pure or whether it was mixed, for those cases in which there is a mixture of infection it is not always easy to definitely say which of the infecting organisms is the cause of most or of all the local and constitutional signs. For instance, a streptococcus infection may become super-infected by a highly virulent

[1] The antistreptococcic serum employed in the cases that were injected came from the British Institute of Preventive Medicine.

staphylococcus and under these circumstances the latter may be, for all we know, the chief cause of the local and constitutional signs. In fact it may become the predominant organism of the mixed infection. There are additional reasons for the separation, one is that the contaminating organism, or organisms, may modify the whole biological conditions, under the influence of which the streptococcus pyogenes exists and operates; and another is that a mixture of infection tends to lower the natural antiseptic properties of the part by further diminishing its physiological resistance. Hence it is not fair to publish the failure of an antitoxin to cure without stating the exact circumstances in which its curative power was tested. Therefore these cases have been divided into those of pure infections and those of mixed infections, and three of each are described in that order.

CASE 1.—A farrier, aged forty-five years, was admitted to the West London Hospital on Feb. 26th, 1896, under the care of Dr. Donald Hood. The patient's family and previous histories contained no positive evidence of importance. The patient had never suffered from gonorrhœa or syphilis, nor had he indulged in alcoholic excesses. On Feb. 22nd, five days before admission, the patient became suddenly ill and complained of severe prostration and one or two severe attacks of shivering. On the same day he complained of pain and noticed redness over the region of the right shoulder. During the next few days he suffered from more attacks of shivering and the right shoulder was blistered. Upon admission the patient was restless and excitable and his manner generally exhibited the premonitory symptoms of delirium tremens. His temperature was 104° F. The pulse was 160 and the urine was clear and free from albumin and sugar and remained so during the course of the illness. During the last few days there was a trace of albumin; streptococci were then sought for, but none were discovered, the urine being sterile. The condition of the skin over the region of the right shoulder was red, slightly swollen, and œdematous; the blister had healed. On March 1st the skin in the following situations was red, somewhat swollen, and œdematous: over the triceps of the left arm and the back of the left shoulder and over the ham muscles of the right thigh, as well as the previously described condition of the right shoulder. The morning temperature was 101° and 105° in the evening. On the 2nd the temperature was 101° in the morning and 105° in the evening. On the 3rd the morning temperature was 101° and the evening temperature 102°. On the 4th another and a similar patch appeared upon the skin over the region of the ham muscles of the left thigh. The tongue was now dry, brown, and transversely fissured. The temperature in the morning was 101° and in the evening before operation 102°. Dr. Donald Hood kindly asked me to see the case and gave it to me to keep under my care. The mental condition was the same and appeared to me to correspond with a similar state in cases similarly infected; fluctuation was demonstrated in the patches of the right shoulder and right and left thigh; there was no joint affection, whilst the local signs of the other regions had subsided almost to disappearance. The patient's work suggested glanders and the diagnosis lay between that and a streptococcus infection, the possible seats of infection being small superficial wounds upon the hands, wrists and forearms, caused by the dropping thereupon of hot cinders that had been blown into the air by bellows whilst he was at work. The patient was isolated until my subsequent bacteriological examination had been made proving it to be a case of streptococcus infection. The same evening the patient was anæsthetised, and after the parts were thoroughly purified incisions were made into the fluctuating areas described above; pus was found collecting in the subcutaneous tissue, but in the right thigh it was extending into and between the muscles. The pus was received into a sterilised tube; cover-glass preparations were made of it, and with it were inoculated tubes of agar, gelatin, bouillon, and potato. The cover-glass preparations were stained after the operation by Gram's method and Löffler's blue. Diplococci and streptococci were demonstrated in short and long chains. A rabbit and a male guinea-pig were inoculated with the pus; the rabbit died in less than twenty-four hours. Diplococci and streptococci were stained in the blood of its liver, heart, and peritoneal fluid. The guinea-pig after being ill recovered. Upon March 8th the media tubes, including the potato, showed a white growth. The gelatin was not liquefied. Streptococci were present and stroke cultures only led to the same result. The streptococcus chains in the fluid medium became much longer and more prolific than in the other tubes. The case was henceforward regarded as a pure infection of streptococcus. The operation of March 4th brought down the temperature, the wounds all did well, there was little or no serous discharge, and no pus or any further indications of inflammation. On March 5th the morning temperature was 99°, that of the evening being 101°. On the 6th the temperature was 98° in the morning and in the evening 100°. On the 7th, 8th, and 9th it was about 99° in the morning and 101° at night. On the 10th, 11th, and 12th the morning temperature was 99° and the evening 103°. During this time the general conditions had improved a little, but none of the areas unoperated upon had completely disappeared. The mental excitability still persisted. As no valuable progress had been made it was decided to inject the anti-streptococcic serum, so in the evening of the 12th 10 c.c. of the serum were injected. On the 13th the morning temperature was 101° and the evening temperature 103°. The patch previously noticed over the left shoulder on this day gave fluctuation; there was no redness. Pus was removed and stained and showed the same organisms as before. In the evening 15 c.c. of serum were injected. On the 14th the temperature in the morning fell, as usual, to 100° and remained there during the day. The patch previously noticed over the biceps of the left arm showed signs of fluctuation; there was no redness. Pus was removed and stained with the same result. After the operation 15 c.c. of serum were injected again. On the 15th, at 2 A.M., the temperature was 103°, at 12 A.M. 98°, and at 8 P.M. 103·6°. In the evening 15 c.c. of serum were injected. On the 16th, at 2 A.M., the temperature was 97°; in the evening 103°. In the evening 10 c.c. of serum were injected. On the 17th the temperature during most of the day was 101°. In the evening 8 c.c. of serum were injected. On the 18th, the serum having had no marked effect upon the patient's temperature or general condition, it was decided to increase the dose and inject it before the evening rise; therefore 35 c.c. were administered at 2 P.M., but at 8 o'clock the temperature was 104°. On the 19th the skin in front of the shoulder and below the clavicle and over the axilla of the right side was noticed to be œdematous and swollen; no fluctuation could be detected, but pus was liberated in a small quantity from the axilla; none could be found below the clavicle. The temperature, which before operation was 103·6°, fell after the anæsthetic and operation to 101°. The morning temperature was 100°. After the operation 30 c.c. of serum were injected. On the 20th the patient's general condition was much worse; in fact, the temperature from this date to the evening of the 24th varied between 103° in the morning and 105° in the evening. Upon the morning of the 26th he quietly died, and before death his temperature was 106°. The amount of serum injected had been 138 c.c. in the six days. The serum used was perfectly clear and sterile and there was never any local sign after its injection. The case was one of general infection, and this dosage of serum did not appear to have had any effect.

Necropsy.—Dr. Turner kindly allowed me to make the post-mortem examination with a view to the bacteriological part of the investigation. The blood from the heart, liver, spleen, and kidneys was subjected to the same tests as was the pus of March 4th and with practically the same result in the case of the blood from the liver and heart, but nothing could be grown upon the media or stained upon the cover-glass preparation of the blood from the spleen and kidneys. The viscera were normal and the microscopical examination of tissues hardened in methylated spirit showed no signs of lardaceous disease. At the top of, and in communication with, the wound of the right thigh there was a pocket of pus that was not detected during life, but it could hardly have been an important factor in the fatal issue of the case.

CASE 2.—A married woman aged thirty years was admitted into the West London Hospital on June 18th, 1896. Upon admission her temperature was 100 F. There were pain, redness, and swelling of the back and front of the right hand and forearm. Pus was just escaping from a small opening over the head of the metacarpal bone of the thumb. This wound was the seat of infection and was made by a splinter of wood whilst scrubbing the floor. Dr. Pardoe, who was house surgeon at the time, enlarged this opening, dressed it with cyanide gauze, and placed the limb upon a splint. On the following day (the 19th) the pain and swelling of the forearm were about the same. The temperature was 102°. On the 20th the temperature in the morning was 100° and at night

102°. On the 21st the morning temperature was 102° and that at night 104°. Dr. Pardoe asked me to see the case. The patient was evidently very ill and the whole forearm and hand was red and very swollen and œdematous. The tongue was dry and brown, and as it was quite late that night I made cover-glass preparations, stained them, and reserved the necessary operation till the next day. Diplococci and streptococci in short and long chains were again the only organisms stainable by Gram's and Löffler's blue. On the 22nd the patient was about the same, the temperature being 104°. Under an anæsthetic pus was found in front burrowing up the sheath of each finger and that of the thumb and also deep down on the surfaces of the metacarpal bones; also in the forearm pus was burrowing between the skin and superficial muscles, between the superficial and deep muscles, and between the deep muscles and the interosseous membrane as far up as the elbow. Free incisions were made into these areas as well as into the back of the hand and forearm. Over forty incisions were made, varying from one to four inches in length. Two of the biggest drainage-tubes obtainable (three-quarters of an inch in diameter) were inserted into the forearm, one between the superficial and deep muscles and the other between the deep muscles and the interosseous membrane. The limb was dressed as before and placed upon a splint. Before sending her back to the ward 30 c.c. of the anti-streptococcic serum were injected. Her temperature in the evening was 100°. On the 23rd the morning temperature was 99°, and 35 c.c. of serum were injected. The limb looked well and healthy; the skin showed fine longitudinal lines indicating the subsidence of the attack. The temperature remained down until June 27th, when it suddenly rose to 104°, but with no further treatment it came down as quickly as it rose and the patient made an uninterrupted recovery. Passive movement was begun early, and the last time she was seen, Nov. 28rd, 1896, she had very nearly regained perfect movement of her finger, wrist, and thumb. Supination and pronation were normal.

The pus removed from the limb upon June 22nd was subjected to the same test as in the first case; the rabbit died in twenty-four hours with diplococci and streptococci in the blood of the liver and heart and in the fluid of the peritoneal cavity. This case was one of localised streptococcus infection and was subjected to very extensive operative treatment as well as the injection of 65 c.c. of the antitoxin. From the surface of the wounds streptococci were stained during the whole of the healing period whilst the patient was in hospital. The seat of injection gave no sign of local complications.

CASE 3.—A child aged twelve months was admitted into the West London Hospital on Feb. 6th, 1896. The family history and the patient's previous history were practically of no importance. The mother stated that for six weeks the child had been ailing, and for the last three weeks had apparently pain in the back and legs that was more marked upon the child being washed or moved. The pain was more localised to the right leg. Dr. F. H. Low saw the case upon Feb. 6th and immediately sent it to the hospital. Two days after admission a swelling over the lower part of the back was noticed by the mother. The patient was a well-nourished child, cried when moved, and passive movement of the pelvis and legs elicited pain, the movement of the right limb causing more pain than the movement of the left. There was a swelling the size of half an orange over the right sacro-iliac synchondrosis. Its margins were diffuse and there was marked fluctuation. When the child cried it became very tense. No rectal examination was made. The temperature was 101°F. After a thorough purification of the skin of the lower half of the body an incision two inches in length was made immediately over the centre of the fluctuating swelling, ten ounces of pus were removed, and on digital examination of the cavity the fore and middle fingers could easily be passed through a jagged opening in the right sacro-iliac synchondrosis and into a larger cavity beyond that was limited in front by the anterior abdominal wall. The latter could be felt between the examiner's finger and the hand upon the surface of the abdomen. Both cavities were wiped out by sponges wrung as dry as possible out of a 1 in 2000 solution of perchloride of mercury and the wound was sewn up with horsehair. After the operation the child was much collapsed. The wound healed and on the eleventh day the stitches were removed. The pus was inoculated into a rabbit and a guinea-pig; the rabbit died and the guinea-pig recovered. Only diplococci and streptococci could be found upon examining in the same way as before; the cover-glass preparations were stained for tubercle bacilli, but the carbol fuchsine and sulphuric acid gave negative results. On the 18th a fluctuating swelling again appeared over the previous site, but no increase of tension could be detected upon the child crying. The temperature was 100°. An incision into this swelling only liberated serum and no pus. My forefinger could not be passed into the opening through the right iliac synchondrosis. The wound was again sewn up by continuous suture and did not further trouble the child or surgeon. The mother has had two or three alarms since and has brought the child up for examination, but the patient has remained up to the present time perfectly well. The serum removed at the second operation was not examined.

This was a case of severe local infection; the source of inoculation could not be detected. The disease probably began as an osteo-myelitis of the bones forming the right sacro-iliac synchondrosis. No antitoxin was injected.

The next three cases are those of mixed infection.

CASE 4.—A man aged thirty-five years was admitted to hospital on June 5th, 1896. The family and previous histories were of no clinical importance. He had not been conscious of being a subject of an infective disease for six years. Then he had an attack of gonorrhœa. The first thing noticed by the patient was that in August, 1895, his penis swelled and a small sore appeared on its dorsum; the sore gradually spread and eventually under treatment (which was of a doubtful nature) it healed. No further trouble was experienced until the end of January, 1896, when his penis again became swollen and another sore appeared near his frænum. The sore remained the same size for a month when it rapidly grew larger and a swelling appeared in the perineum and up the fold between the thigh and perineum. A swelling also appeared in the groin of the left side; this was freely opened, but eventually became a large foul-smelling ulcer. In May lumps appeared in the tibiæ that gradually became quite soft. On admission the urethra was found to be laid open for an inch of its extent, and a ring of skin at its base was the only part of the penis with a cutaneous covering. A large sore with undermined edges and the size of a man's hand was situated above Poupart's ligament. In the right groin was another large abscess; an abscess was also discovered on the dorsum of the right foot. These swellings were opened on June 16th. Fluctuating swellings over the forearms were opened and pus was removed for examination in the same manner as before. Only streptococci could be stained upon the cover-glass preparation; a white growth in two or three days occurred upon all the tubes, but the gelatin was rapidly liquefied; stroke cultivations were made upon gelatin, but all the growth that could be seen liquefied the gelatin and still only streptococci were stainable, and the rabbit inoculated with the pus did not die, but recovered after being very ill for twenty-four hours. (In recently describing the case to an authority it was definitely decided by him to be a case of mixed infection of streptococcus pyogenes, and that plate cultivations ought to have been made instead of the stroke cultures with a view of determining the organism that liquefied the gelatin.) After the operation the large sore in the left groin was more efficiently examined and the forefinger was passed directly downwards and inwards towards the base of the bladder. A catheter was then passed into the bladder, but no communication could be detected between the great cavity in which was the finger and the bladder or urethra. The digital examination caused profuse hæmorrhage, but it was easily controlled by pressure. The No. 12 catheter passed with the greatest ease. In examining by the rectum nothing definite could be detected; rather than any tumour, the parts outside seemed to be more ulcerated. After this examination the patient passed blood in some quantity by the urethra with the urine, but urine without blood escaped from the groin ulcer, a large quantity a day. In the urine passed per urethram were large epithelial cells containing pigment granules. The case was undoubtedly one of extravasation of urine, and, I thought, probably due to the ulceration of malignant disease at the base of the bladder and prostate, and the extravasation the source of the mixed infection. During the whole of this time his temperature varied between 98°F. in the morning and 103·6° at night. Fortunately there was no frequency of, or pain on, micturition, and in the patient's condition it was not thought justifiable to do more than carefully dress his groin and other wounds. No further collection of pus occurred until July 13th, when the skin over the malar bone of the right side was seen to be swollen and fluctuation

was obtained. This abscess was opened by Mr. Wilmer. To try to eradicate the streptococcus element from the case it was decided to inject the antitoxin, so with the patient's consent on the 16th 10 c.c. of the serum were injected. The temperature remained about the same as before (99° in the morning and 102° at night). On the 17th during the day three injections of the antitoxic serum were made, each of which was of 10 c.c. The evening temperature was still 102°. On the 18th, in the morning another 10 c.c. of serum were injected, but still the patient was not showing any sign of improvement. On the 19th an abscess was noticed on the right frontal eminence and another over the skin of the right tibia, both of which were opened and 20 c.c. of serum were injected. On the 20th, upon the advice of Dr. W. Bulloch a larger dose of 75 c.c. of the serum was injected, but the temperature and general signs continued to get worse. The opened abscesses did not in any way give rise to further trouble, neither were there any complications at the seats of the injections. The patient died on July 26th. The relatives would not allow me to determine the cause of the extravasation or to examine the blood and various viscera for bacteriological evidence. In all 140 c.c. of the anti-streptococcic serum had been injected.

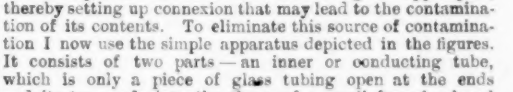
CASE 5.—A girl aged sixteen years attended as an out-patient at the West London Hospital in August, 1896, with facial erysipelas. A small bleb under the left eye was cauterised and cover-glass preparations were made of the contained serum, and a gelatin and a potato tube were inoculated. There was a yellow growth on each. The gelatin was liquefied and plate cultivations showed diplococci, streptococci, and staphylococci. The cover-glass preparations of the pus showed the same when stained. The patient had been ill two days. Upon the first day of her attendance 10 c.c. of the serum were injected. On the next day the rash had spread to the front of the forehead into the scalp and over the nose and chin, the temperature being 101° F. A dose of 20 c.c. of serum was injected. On the following day the rash was still spreading; the temperature was 102°, and 30 c.c. of serum were injected. On the fourth day the rash had spread still further, involving the neck and forehead, and no more antitoxin was given, but the face was getting better. No seat of inoculation was to be discovered. As the disease seemed to be running its usual course and the 60 c.c. of the antitoxic serum did not appear to influence it no more injections were made.

CASE 6.—A girl aged eighteen years was admitted to the West London Hospital on Sept. 18th, 1895. Her family history was unimportant. Since childhood the patient had had a discharge from the right ear. For the previous three weeks she had complained of pains in the head and occasional attacks of vomiting and shivering. The mother stated that for the last three days the patient had been light-headed. On admission her temperature was 102°; she was delirious; there were double optic neuritis and an œdematous, fluctuating, crepitant swelling extending subcutaneously from behind the right ear over the temporal and mastoid regions. Three-quarters of an hour after admission the patient was anæsthetised, and I made a semi-circular incision behind the right ear and upwards to the temporal region and downwards to the mastoid region. From the centre of the incision another was made directly backwards and therefore at right angles to it. The flaps thus made were turned up and down. By these procedures most offensive pus was liberated. No opening into the so-called mastoid antrum could be seen so an opening was chiselled into it; out of this cavity sprang up, as if under pressure, some more offensive but thicker pus. The mastoid process was also chiselled open and pus was scraped away together with the infiltrated cells of the mastoid process. Chiselling still growths back the lateral sinus was well exposed, and as this venous channel was evidently thrombosed it was freely opened upwards and downwards and the same offensive and semi-purulent contents were removed. The limit of the clot was reached in the upper end but not in the lower. The internal jugular vein was next exposed and ligatured and an inch of it excised at the level of the upper border of the thyroid cartilage. No thrombosis had reached this point. She made an uninterrupted recovery. There was no facial paralysis. Stained cover-glass preparations and stroke cultivations made on agar, gelatin, and potato from the blood clot from the lateral sinus demonstrated a very mixed infection of streptococci, staphylococci, and various kinds of bacteria. No antitoxin was administered. I saw the patient last on Sept. 27th, 1896. She was perfectly well with the exception of a slight discharge from the ear. The big hole behind it had to a great extent filled up with bone.

With regard to the cases injected with the antitoxic serum it will be seen that the disease was well advanced in all of them before the antistreptococcic serum was administered. This point is important, and had these cases been treated by the serum quite early, their results might possibly have been different.

By means of a sterilised test-tube alone it is impossible to collect pus or other fluid without soiling its upper part, thereby setting up connexion that may lead to the contamination of its contents. To eliminate this source of contamination I now use the simple apparatus depicted in the figures. It consists of two parts—an inner or conducting tube, which is only a piece of glass tubing open at the ends and its top made into the shape of a small funnel, placed into an ordinary test-tube and fixed *in situ* by means of the cotton-wool plug with which this tube is stopped (Fig. 1). This precaution is of importance, for unless the

FIG. 1.



inner tube is fixed it will shake about while travelling and crack its host. The whole thing is sterilised together. Fig. 2 demonstrates its method of use. The cavity containing the fluid is opened at its most accessible spot by means of an incision most conveniently directed and its walls are held apart by blunt hooks; the inner or conducting tube is then drawn half-way out of its host and by

FIG. 2.

means of a pair of forceps is held in the cavity at an angle that will permit the fluid to gravitate through it to the bottom of the receiving tube. When a sufficient quantity has been collected the inner tube is carefully and permanently removed, and the tube containing the fluid must be again stopped with its sterilised cotton-wool plug.

Harley-street, W.

A CASE OF ACROMEGALY.

BY ISAAC BANKS, M.D. R.U.I.

I THINK the following case will be of interest especially considering its rapid progress. The patient is a woman aged twenty-six years who has been married four years; she is a nullipara. She has led a regular life and has never had any illness that she can remember except an attack of scarlet fever. Her family history is good, there being no hereditary complaints and no specific history. About eighteen months ago she began to suffer from intense pains in her head, eyes, and legs; the head pain was continuous and most marked in the frontal and occipital regions. The pain in her eyes she described as affecting "the back of her eyes," especially the left, and was increased on movement. The pain in her legs was intermittent; it was most marked in the lower half of both tibiæ and gave the sensation as if her "bones were bursting." She had not menstruated for two months and thought she was pregnant. Her hands

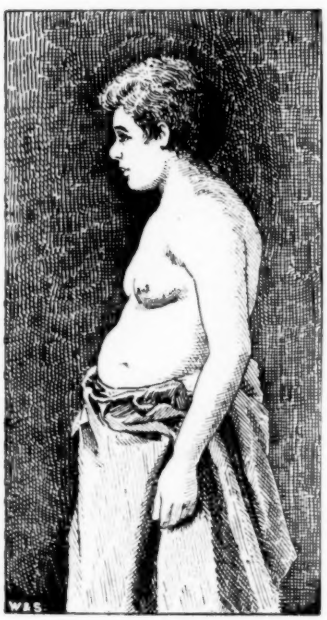
commenced to swell so that she had to remove one of her rings, and at the same time her boots, which previously were bought ready-made "fives," had to be got to order owing to the increased breadth of her feet. At the same time her hair became much coarser and longer. She came under my treatment nine months ago, having never had previous medical attendance. Her relatives attributed all her symptoms to pregnancy and her mother wished me to examine her for this. Fig. 1 is reproduced from a photograph which was taken three years ago, the other two showing her condition when she first came under my care. Her present condition is as follows. Her face is elongated, oval in form, measuring from the frontal hair to the symphysis menti 9 in. The left malar bone is very prominent and the left eye appears as if pushed upwards by it. The expression is dull and lethargic. The optic axes are convergant and proptosis of both eyes is well-marked, but both these symptoms vary from time to time. Both eyes are hypermetropic, but the vision varies with the degree of proptosis present. Central vision is lowered in the left eye and the optic papilla is of a pale pink colour; the right eye

FIG. 1.

Shows an active energetic young girl three years before she came under my notice.

has well-marked temporal hemianopia. The eyelids, lips, and nose have a thickened, œdematous appearance; they are firm to the touch and do not pit on pressure. She breathes through her mouth, which is always open. The Schneiderian membrane is hypertrophied. The lower jaw takes part in the general enlargement of the bones of the face and measures from condyle to condyle 14¾ in. When the mouth is closed the upper and lower incisors meet, but the latter do not project. The skin is of a sallow colour, moist, and without pigmentation. At times there are profuse perspirations. The temperature at different periods has been 97·4°, 99°, 98°, and 100·4° F. The tongue and the soft palate are hypertrophied; speech is slow, clumsy, and thickened. The neck is greatly enlarged, especially about the origin and lower portion of the sterno-mastoid. So far as can be determined the thyroid body is normal; there is no evidence of increase in size or persistent thymus. The scapula and the bones of the shoulders are normal, but the sternum is broad and elongated, especially at the junction of the manubrium and the gladiolus, where there is a thick prominent ridge, as can be seen in Fig. 2. The second rib is also prominent and thickened. The breasts are atrophied, and particularly the nipples, which are surrounded by a few coarse long hairs. The cervico-dorsal curve is well-marked—a true kyphosis with no lateral deviation. The abdomen is extremely pendulous, with transverse folds at and below the umbilicus; the girth at the umbilicus is 45½ in. Her waist has increased by 15 in. during the last two years. The splenic dulness seems increased, so far as could be made out; the lower ribs are very oblique and almost touch the iliac crests. The pelvic bones are not enlarged. The hands are greatly enlarged; she has been unable to wear gloves for about two years, and her wedding ring, which was much too large, cannot now be removed from her finger. This enlargement is entirely in breadth and thickness and of the whole hand. The circumference of the forefinger over the middle of the proximal phalanx is 3½ in., that of the thumb at a corresponding point being 3¾ in. The fingers do not taper; the nails are longitudinally striated, broad, thin, and brittle. The palmar folds are well marked; the thenar and the hypothenar eminences take part in the general enlargement, and the entire hand is firm and resistant to the touch.

FIG. 2.



Shows the cervico-dorsal curvature, the pendulous abdomen, and the ridge at the junction of the first and second pieces of the sternum.

There is no loss of strength. The enlargement of the feet is characteristic, but not so well marked as that of the hands. The circumference at the metatarso-phalangeal joint is almost 10½ in. The tibiæ are tender on pressure. The muscles of the arms and the legs are lax and flabby—she says "wasted"—but they do not appear so. The patellar reflexes are absent; the superficial reflexes and the cutaneous sensibility are normal. Her gait is clumsy and she cannot stand erect with her eyes shut. The circulatory and respiratory systems are normal, though at times the breathing is laboured and a little irregular; the appetite is fair, there is extreme thirst, and obstinate constipation is present. The mental condition resembles that characterising myxœdema. She sleeps for twelve hours out of the twenty-four; she appears to suffer from slight sensory aphasia; her memory is at times deficient—she will ask the time repeatedly in the course of an hour. The condition of the genito-urinary system is as follows. She passes in the twenty-four hours from five to seven pints of urine of a specific gravity of 1020 and containing a large quantity of

phosphates, but otherwise normal. The hair over the pubes is coarse and thick and its distribution is similar to that in the male, being continued upwards to the umbilicus and backwards past the anus; these changes in quality and distribution have developed within the last two years. The external genitals are normal; the vagina is elongated, large, and patulous, easily admitting three fingers. The uterus is small, atrophied, and apparently not larger than a hazel nut. The sound passed a little less than two inches. The ovaries could not be felt. No sexual gratification had been experienced for more than a year.

FIG. 3.

Shows the formation and expression of the face, the condition of the hands, the strabismus, and the upward displacement of the left eye.

The patient has now been under treatment for three months. This consists of one ounce of sulphate of magnesia every second day and a mixture of ten grains of iodide of potassium with twelve grains of bromide of potassium thrice daily. Under this treatment her mental state has materially improved; she sleeps less, her memory is better, and she is able to perform most of her household work, but otherwise her condition is unaltered.

The most noticeable peculiarities of this case are its rapid progress, the change in quantity, quality, and distribution of the hair and the hypermetropia seemingly dependent on the proptosis.

Aberdare.

THE PATHOLOGY OF ECLAMPSIA.

BY JOHN W. BYERS, M.A., M.D.,
PROFESSOR OF MIDWIFERY, QUEEN'S COLLEGE, BELFAST.

IN the whole range of obstetric medicine there is no more interesting or fascinating subject than eclampsia and certainly none which presents such a variety of questions for discussion. The physician knows so little of the natural history of eclampsia that he cannot predict the course of any case either with or without treatment. He knows that a great many of the cases are associated with albuminuria and diminution in the amount of urea excreted. He also observes that the condition is most frequently seen in primiparæ, that its occurrence varies in different parts of the same country and in different years and seasons, that when it sets in during pregnancy it is most frequently met with towards the latter months of gestation, but that it is more often encountered at labour and less frequently after the birth of the child. Further, he knows that various post-mortem lesions are met with in the kidneys, liver, lungs, and brain. The clinical history and the morbid anatomy vary in different cases, and there is no condition in which the medical man finds his grounds for prognosis less sure, for, as Professor Tarnier stated at the late International Congress of Obstetrics and Gynæcology at Geneva, eclampsia is a disease full of surprises, cases the most benign in appearance frequently turning out badly, while, on the other hand, the very reverse is often true.

If the treatment of eclampsia is to be at all scientific, if it is to be anything more than merely empirical, it must be based upon some sound knowledge of the causation of the condition with which the physician is called to deal; but before discussing the various views put forward as to the origin of eclampsia I would like to speak of a point of great importance, to which, at least in these countries, too little attention has been paid in considering the cause of eclampsia, and that is the part played by the fœtus. It is surely a very noteworthy circumstance, which personally I have now verified on several occasions and to which notice was first drawn by Winckel, that when the fœtus dies during pregnancy, even in the case of a woman who has what we term the premonitory symptoms of eclampsia, the danger for the mother is entirely overcome or very much diminished. I called attention to this point in a paper at the Geneva Congress introductory to the question of the Treatment of Eclampsia, and in the discussion which followed Professor Morisani (Naples) and Professor Pasquali (Rome) referred to it, the former stating that before deciding on obstetrical intervention it was necessary to ascertain whether the child was alive or not, as he had on several occasions proved that the death of the fœtus put an end to the convulsions and the albuminuria; while Dr. Pasquali said he had found that the death of the child checked the eclampsia, and he confirmed the view put forward by me by stating that this fact suggested the question whether the fœtus does not play an important *rôle* in the etiology of such a dangerous complication. It is known also that in multiple pregnancies there is a greater predisposition to convulsions, and, finally, while the maternal mortality is greatest when the eclampsia sets in during pregnancy, it is less when that complication occurs during labour, and least of all when it occurs for the first time after the birth of the child. It must not be forgotten that the fœtus in its development forms excrementitious or waste products, which must be eliminated by the mother in addition to what she has to get rid of as the result of metabolism in her own system. Various views have been put forward to account for the origin of eclampsia, but they may be grouped under three heads:—

I. *The reflex neurons theory.*—According to some teachers the uterine nerves are, owing to the enlargement and contraction and retraction of the uterus, kept in a state of irritation which reflexly acts on the renal and sympathetic nerves, causing the albuminuria and the eclampsia; while others teach that the convulsions are reflex, but culminate in a cerebro-spinal centre in close proximity to the albuminuria centre. There are three objections to such an explanation of eclampsia: (1) there is no evidence in support of it beyond the circumstance that the nervous system in pregnancy and during labour is in a condition of high tension or increased irritability; (2) this view fails to explain the post-mortem lesions present in fatal cases; and (3) if the whole phenomena of eclampsia are to be regarded as merely reflex, why do they not occur in every pregnant woman who has a highly-strung nervous system? Reflex action may be a factor in the problem, but it certainly will not explain the whole question.

II. *The kidney view.*—Ever since the time that Lever, in 1842, made his brilliant discovery that in many cases of puerperal eclampsia there is albumin in the urine, the attention of obstetricians has been fixed on the kidneys, and the view has for long held the field that the convulsions are caused by the poisoning of the nerve-centres by certain by-products, urea, creatin, &c., which the kidney, owing to its abnormal condition, fails to eliminate. The arguments in favour of the kidney theory are:—1. In eclampsia the condition of the urine clinically indicates some decided interference with the function of the kidneys. It often contains albumin, blood, renal epithelium, and casts. It is scanty, and at times there is a history of its sudden suppression, and, as Dr. Herman has pointed out, the most constant feature in these cases is diminution in the excretion of urea during the fits. Œdema of various parts

of the body is noted, and in certain cases ophthalmoscopic examination demonstrates changes in the fundus oculi. 2. The results of post-mortem cases show that often a diseased condition of the kidneys is present, and Professor Leyden thought there was a nephritis specially associated with pregnancy and distinct from all others. He found the kidney in three fatal cases "large and pale, the cortex yellowish and dull. Microscopic examination showed a very extensive loading with fat, especially in the tubuli contorti; to some extent also in the glomeruli and in the Malpighian capsules. The fat was distinctly present in large drops." When the kidneys had remained for a time in spirit the fat in great part disappeared, and then the organs, on microscopic examination, appeared to be normal, and accordingly he inferred that this fatty condition was not a degeneration but an infiltration. His view was that such morbid conditions are due to a prolonged arterial anæmia and that they explain the rapid recovery which so frequently follows delivery. This extreme view that all cases of eclampsia are the result of renal disease is, I think, being abandoned, and the following facts are distinctly against the renal theory of the causation of eclampsia. 1. Every obstetrician now and again comes across cases of this complication in which no albumin has ever been present; nay, even, in some fatal cases, the kidneys are quite healthy. 2. All obstetricians have seen women with chronic renal disease become pregnant and yet never develop convulsions. 3. It is also remarkable that the certainty of the occurrence of eclampsia is not proportionate to the intensity of the albuminuria. 4. It is very rare for convulsions to occur in acute disease of the kidney apart from pregnancy, except in cases where the renal affection is associated with some specific disease like scarlet fever, where there is *already* a poison circulating in the blood. 5. Again, sometimes women die comatose in eclampsia, and yet the amount of albumin present has never been more than a trace. I believe albuminuria is of the utmost importance as a predisposing factor, but I do not think it is the exciting or sole cause of eclampsia.

III. *The toxæmic or blood-poisoning hypothesis.* — As neither of the two previous views covers all the cases of eclampsia, and as serious objections can be brought against them both, modern observers have been inclined to take a broader view of the causation of eclampsia; and the opinion held by many obstetricians at present may be stated in this way. Taking everything into consideration, the most probable explanation of eclampsia is that the convulsions are caused by the action on the nerve centres of a poison which arises as a product of ordinary tissue metamorphosis (elaborated in part by the mother and also by the fœtus), and which, provided it does not accumulate in too great an amount and that the eliminating organs are working properly, is got rid of without any ill effects. If, however, any of these organs (especially the kidney, liver, and intestines) gets too much to do—as when the muscular efforts of labour increase the work of the kidney—then the poison is not eliminated and its increased accumulation affects the nervous centres; or the same thing may occur if the function of the excreting organs is interfered with, as in constipation, or when the kidney is in that condition which Leyden has described as being peculiar to pregnancy, or when there are changes in the renal organs and the liver in the form of a parenchymatous degeneration, produced it may be by the poison in its circulation through them. It is in this way that the presence of albuminuria is of such importance clinically. The high tension and increased irritability of the nervous system in pregnancy and labour and the presence of a source of peripheral irritation in the uterus are also elements of great importance in the problem. This theory of blood poisoning or toxæmia as the cause of eclampsia is supported by the following arguments:—1. It covers all the cases whether there is albumin or not present. 2. The clinical history of eclampsia is that of a toxæmia. "The prodromata," as Kaetenbach puts it—"gastric and cerebral symptoms—the rapid occurrence of serious disturbance in the action of the brain, the post-mortem increase of temperature, the nature and frequency of nerve disorders that follow and which find their analogy in the neuroses consequent upon typhus and diphtheria probably caused by toxalbumins, are scarcely to be explained unless by the theory of blood poisoning."[1] 3. The post-mortem appearances. According to Zweifel[2] multiple thromboses are invariably found in the liver, lungs, and brain in all fatal cases of eclampsia and certainly indicate the existence in the circulation of some blood-coagulating product of organic change—it may be creatin, suggested in 1853 by Wieger and Schottin, and, more recently by Landois, some leucomaine or carbonic acid. Zweifel mentions that the inoculation of creatin into the cortical cerebral matter of apes caused clinical symptoms like those of eclampsia. Chambrelent of Bordeaux showed in a series of experimental researches that the toxicity of the blood is increased both in the fœtus as well as in the mother when the latter has presented symptoms of eclampsic intoxication; and it is worth noting that Professor Tarnier has stated that the better results in his treatment of eclampsia from 1892 until 1896 (when he had twenty-two cases of convulsions with two deaths—a mortality of 9 per cent.) were due to the new treatment he adopted based on Dr. Chambrelent's researches on the toxicity of the blood in eclampsia. At the Geneva Congress Professor Lindfors (Upsala) showed microscopic sections exhibiting changes in the liver cells and also emboli proving the existence of hepatic cells in the floor of the cardiac cavities from a woman dying from eclampsia.

Such is the modern view as to the causation of eclampsia, and considering the extraordinary progress of bacteriology there have not been wanting some to suggest that the ultimate cause of the blood-poisoning is the entrance of bacilli, but up to the present these have not been discovered and all the phenomena of eclampsia can be explained as due to an auto-intoxication. This toxæmic theory is of the utmost practical value, because, acting upon it as a good working hypothesis, it assists the physician in the prophylaxis of eclampsia. It teaches him the enormous importance of the eliminating organs in pregnancy, and when these show any sign of not acting properly he at once puts the patient on a diet such as milk, which gives them the least to do, and which French observers think has the power of getting rid of a quantity of the toxin; and also by hot baths and purgation he encourages these organs to act and so to eliminate the poison.

Belfast.

[1] Text-book of Obstetrics (Norris), p. 632.
[2] Centralblatt fur Gynakologie, Nos. 46, 47, and 48, 1895.

NOTES ON BERI-BERI AS OBSERVED AT THE SEAMEN'S HOSPITAL, GREENWICH.

BY M. H. SPENCER, M.A., M.D. CANTAB.

BERI-BERI is a disease which rarely finds its way into the wards of a general hospital in England, but at the Seamen's Hospital, Greenwich, where patients are received from all parts of the world and of all nationalities, many instances of this disease come under notice. On referring to notes there appear to have been between thirty and forty cases of beri-beri treated in this hospital during the two years 1890 and 1891. The diagnosis in many or most of the cases was "œdema of legs" or "peripheral neuritis," but the description of them leaves but little doubt that they were cases of beri-beri. During my residence in the hospital from January, 1891, to August, 1895, I saw a good number of these cases, but amongst them only one which terminated fatally. I believe that the form of the disease that we see in England is the sub-acute variety, for in the countries where the disease is endemic it is extremely fatal. The average duration of our cases after they came under treatment was about two months. The majority of the patients were Lascars or Zanzibari; a few were Chinamen. Beri-beri is very common in China, but the Chinese form a small proportion of the ships' crews visiting England. As a rule, owing to the difficulty of understanding the patient's language, we got very incomplete histories or none at all. Even those who can speak Hindustani can make little of the Lascars, who generally speak a dialect of their own. In most cases, however, the diagnosis is not difficult even when all verbal communication between medical man and patient is impossible. One cannot help regretting that in many cases the observations with regard to sensation are incomplete, and in other cases where a history might have been of considerable value in clearing up the case, the diagnosis had to be written down with a decided query in front of it.

I do not intend in this paper to introduce long case narratives, but to confine myself to a brief sketch of the disease, illustrated by the chief symptoms which presented themselves in the cases that were under treatment at the

Seamen's Hospital, Greenwich. Nearly all observers now agree in regarding beri-beri as a disease of the peripheral nervous system. All the symptoms which are observed in the course of the disease are accounted for by this view, and it has been established, moreover, by microscopical examination of the nerves in fatal cases. The symptoms arising from a diffuse peripheral nerve lesion are, of course, varied, and they are seldom all present in a given case. The muscular, sensory, circulatory, respiratory, and digestive systems are all liable to be affected, and it will be convenient in giving a sketch of the disease to consider the symptoms it presents in this order.

The muscular system.—Loss of power in the limbs was present in all cases. The legs were always affected more than the arms. The paralysis was never absolutely complete and it varied much in degree, but in most of the cases when first seen the patient was unable to stand alone without assistance. When tested electrically the reaction of degeneration was generally present. The muscular wasting in chronic cases was very marked, the legs often being reduced to mere sticks. When the patient recovered sufficiently to be able to walk a little the gait was very tottering and slow. In some of the cases it was rather spastic in character, the feet being lifted high from the ground. In most cases the toes were placed upon the ground first, but in one case the heels were brought to the ground first, as in ataxy. Dr. Manson in speaking of the gait remarks: "The patient has to raise the heel very high before he can clear his toes from the floor on advancing the foot. This is due partly to imperfect perception of the ground, partly from the foot flexors being weakened, partly from a certain amount of semi-spastic contraction of the calf muscles. On the foot being placed upon the ground again the toes are seen to be the first to touch it, the sole and heel falling with a flop. If the flexors of the leg and thigh become seriously involved the foot cannot be raised and the gait becomes a shuffle." As in alcoholic paralysis, the extensors suffer more quickly than the flexors and foot drop is therefore a common phenomenon. The weakness of the arms in the cases I have seen was evidenced by feebleness of grasp, but never amounted to actual paralysis. The weakness of the legs and muscular wasting was generally, but not always, symmetrical on the two sides. The paralysis was never accompanied by loss of control over the emunctories. Laryngeal paralysis is said to be common. I saw one instance of marked aphonia, but could not get a view of the cords owing to the swelling of the fauces and soft palate. Ocular paralysis was never present. Cyclopiegia was not tested for. It does not seem to have been noticed by writers. The order in which the muscles are attacked has been observed by Pekelharing and Winkler. The muscles supplied by the peroneal nerve are invariably the first to be affected, next the calf muscles, then the extensors of the knee, then the adductors and flexors of the thighs. When the thigh muscles are attacked the hand and wrist muscles, with the supinator longus, are nearly sure to suffer. The knee-jerk was absent in all the cases I saw; it may, I believe, be exaggerated very early in the disease, but is soon lost and is late in returning.

The sensory system.—Anæsthesia is, on the whole, a very constant symptom. It is often difficult to map out at all accurately anæsthetic areas for reasons given above. In a greater or lesser degree it was present in nearly all the cases that I saw, and I have no doubt that if seen early enough and tested carefully every case would have shown some change or loss of sensation. Pekelharing says that the groin and neighbouring surfaces always retains sensibility. Simons found numbness round the mouth to be a common symptom in Japanese beri-beri. The chest appears to be seldom affected. In some of the cases I saw the anæsthesia was general, the lips only retaining their sensibility. The most usual seats of anæsthesia were the lower extremities, especially over the anterior surface and the tips of the fingers. When admitted a patient could seldom perform the rough test of picking up a pin between the thumb and index finger. The return of sensation took place, as might be expected, far more rapidly than the return of power. Hyperæsthesia is as constant a symptom as anæsthesia. Tenderness of the muscles was present in all the cases I saw; it varied in degree; the parts most sensitive to pressure were the calves of the legs and thenar and hypothenar eminences; in some cases tenderness was very marked over the front of the tibia. Besides tenderness painful cramps are present at times in the muscles. There is often tenderness over the nerve trunks. Precordial and epigastric pain is sometimes complained of, with a sense of constriction and oppression in the latter region.

The circulatory system.—Anæmia is present in many of the cases, and by some authors the disease has been put down to anæmia, and has even been considered to be identical with pernicious anæmia or ankylostomiasis. It must be confessed, however, that anæmia may be absent and that the whiteness of the œdematous skin is in some cases mistaken for anæmia. The hæmoglobin percentage falls in some cases to a little below normal, but leucocytosis is not present, and it is probable that the heart symptoms which are so often present are not the result of anæmia, but of a degenerative change of the pneumogastric nerves. The pneumogastric and phrenic nerves were particularly noticed by Pekelharing as those which generally showed signs of pathological changes in fatal cases. The presence of the ankylostomum duodenale is a coincidence, not a cause of the disease; it must be remembered that it is of frequent occurrence in Orientals. Dilatation of the heart was observed in most of the cases. Pulsation of the veins in the neck with enlargement of the area of the heart's dulness to the right often showed that the right ventricle had unusual strain thrown upon it, and this, as we shall see, is one of the dangers which have to be met and treated in severe cases. Absolute dulness in one case extended beyond the right edge of the sternum, whilst the apex beat was outside the nipple line. The cardiac impulse was often feeble and diffused. Murmurs were frequently, though not invariably, present. In several cases a loud systolic bruit was present at the apex partly conducted to the axilla. A systolic murmur over the base of the heart was more frequent. The second sound was frequently reduplicated and this sign was present in several cases in which the murmurs were absent. As convalescence was established the murmurs and cardiac dilatation subsided. The pulse was rapid, feeble, and irregular in most of the severe cases. It was always more rapid in the erect posture and on exertion of any kind. The rapidity of the pulse of a patient who was at rest in bed was looked upon to some extent as an indication of the severity of the disease even in the absence of other bad symptoms, and on the whole I think this opinion was justified. Œdema was present to some extent in the great majority of cases, and in some of them it was very marked. In two cases the œdema was of the hard variety, but before many days had elapsed the parts began to pit on pressure. Occasionally the whole body trunk, limbs, and face were œdematous, giving to the patient the appearance of one suffering from an attack of acute nephritis. In one case there was considerable swelling of the soft palate and fauces. When the œdema was slight or disappearing it could generally be recognised by some pitting on pressure over the front of the shins, crests of the tibiæ, and front of the sternum. The œdema generally subsided quickly under suitable treatment. Dr. Manson says the œdema may be confined to certain spots, being localised at times to one limb; it may migrate from one part to another. In one type of the disease it is the most striking symptom. Pekelharing and Winkler lay great stress on pre-tibial œdema as an early sign of the disease; if in these cases the electrical reactions of the leg muscles are tested some definite changes from the normal type will, they say, be almost certainly found and a diagnosis be established. Albumin was only found in the urine in one of the cases that I saw. The œdema in this case was very marked and more persistent than usual; this case might have been diagnosed as Bright's disease but for the paresis, subsequent wasting of the muscles, anæsthesia, and localised tenderness. Ascites was not present in any of the cases; it seems to be of uncommon occurrence. The same remark holds good of hydrothorax. It is exceptional, Dr. Manson says, to meet with cases of extreme œdema, which render the patient completely waterlogged.

The respiratory system.—Dyspnœa is a frequent symptom in beri-beri. It may be paroxysmal in character and resemble the dyspnœa met with sometimes in influenza apart from lung complications. This form of dyspnœa was noticed by Graves in the influenza epidemic of 1839, and was no doubt of nervous origin; a similar explanation is probably applicable in beri-beri. When the right ventricle is seriously dilated and hampered in its action a severe form of dyspnœa with cyanosis results, and apart from this form dyspnœa of cardiac origin from failure of the heart's action may be present, accompanied by great epigastric pain and oppression. I saw one instance of this form of dyspnœa in a Chinaman who

died from the disease soon after admission. The diaphragm or intercostal muscles may be paralysed and thus cause death from interference with the respiration. Besides these nervous and cardiac forms dyspnœa may arise from œdema of the lungs. Some œdema of lung is not an infrequent complication, as evidenced by cough and expectoration of watery, frothy sputum. In the fatal case above mentioned the lungs were very œdematous and the heart was dilated with soft, friable muscle wall. In most cases there is a certain amount of breathlessness on exertion.

The digestive system.—Together with the other organs supplied by the pneumogastric nerve the stomach is liable to suffer. In one case under treatment vomiting was a prominent symptom, but as a rule it is absent. Diarrhœa was present in one case only and was easily checked. Dr. Manson mentions it as not an infrequent symptom at the commencement of the disease.

Temperature.—In the cases we had under treatment the temperature was normal or subnormal throughout. There is a period in the disease at its commencement when the temperature rises to 103° or 104° F., preceded by a rigor; it soon, however, falls to normal. This fact was observed by Dr. Manson during an epidemic which occurred in hospital. I do not think, however, that a rise of temperature at the onset of the disease is a constant symptom. The onset in many cases is most insidious.

Etiology.—In spite of the arduous researches of Pekelharing, Winkler, and others the organism which is the cause of beri-beri has not been satisfactorily and certainly determined. But little doubt, however, remains that it is a germ-borne disease and that the micro-organism which is the cause of it has a specially toxic influence upon the peripheral nerves. Europeans residing in endemic areas but seldom suffer owing to their habits being different to those of the natives. There was an epidemic of beri-beri, however, amongst the British troops in Burma in 1824, so that it is not a "race disease." Takaki believed it to be due to absence of nitrogen in the diet, and after this defect was altered beri-beri almost disappeared from the Japanese navy, but at the same time the hygienic conditions of the ships were greatly improved. Overcrowding seems strongly to predispose to the disease, but it occurs, as Dr. Manson says, not "from overcrowding but in overcrowding." It is certainly more prevalent in some ships than others, owing no doubt to the forecastles in which the crews live becoming infected. It may spring up at sea long after the ship has left port. The incubation period is a long one in some instances, and a slow poisoning may precede acute manifestations just as with alcoholic neuritis. Damp and heat seem to be predisposing causes. It is more common amongst men than women; amongst women pregnancy and the puerperal state have been mentioned as predisposing to it. The most susceptible period of life seems to be between twenty and thirty years of age.

Pathology.—Degeneration of the nerves was discovered in eighty-five successive necropsies made by Pekelharing and Winkler. The microscopical examination of the nerves showed great increase in the number of the nuclei in the endoneurium and often a proliferation of nuclei of the blood-vessels of the nerves. The medullary sheath was destroyed especially near the nodes of Ranvier. The myeline sheath was aggregated into shining granules. At a more advanced stage it disappeared and at a later stage even the axis cylinder was destroyed. In chronic cases there was hyperplasia of the endoneurium of a gelatinous character. The changes found in the cord were few and inconstant. Changes in the muscles of a degenerative kind were nearly always present to a greater or less degree.

Treatment.—Patients suffering from beri-beri should as soon as possible be removed from the infected area. They should be kept carefully at rest in bed in well ventilated rooms, which should be raised above the ground. Great care should be exercised in moving severe cases, for, as in scurvy, sudden heart failure is liable to occur. Treatment should be directed firstly towards strengthening the heart's action and towards the relief of the overloaded pulmonary system. For this purpose a mixture containing sulphate of magnesia, digitalis, and nux vomica seems to be useful. The sulphate of magnesia should be present in sufficient doses to secure free action of the bowels. In the meantime the patient's strength should be supported with suitable diet. Wheat, barley, or beans should be substituted for rice, and some animal food should be taken. Stimulants are best kept in reserve for attacks of syncope. If the right side of the heart is much dilated, as evidenced by pulsation of vessels in the neck, dyspnœa with cyanosis, increased area of the heart's dulness to the right, and reduplicated second sound, free purgation should be employed. Nitro-glycerine may also prove useful in such cases, but if relief does not follow these measures it is best to bleed the patient from the arm without delay. When the affection has reached a chronic stage, with wasting muscles, well applied massage and faradaism may do much to hasten recovery. During convalescence iron and arsenic may be given with advantage.

Geographical note.—In India the disease is met with in the Northern Circars, less frequently on the Coromandel coast, in the Carnatic, and on the Malabar coast. It is exceedingly prevalent in the Malay archipelago and Malay peninsula generally. It is present in Siam, Tonkin, Anam, Cochin China, and to a great extent in Japan. It is less prevalent in China than in Japan. It is present also in and around Calcutta, Assam, Aden, Zanzibar, Réunion, Mauritius, Nosibé, and Madagascar, the Congo and probably the West Coast of Africa generally, the Isthmus of Panama, Cayenne, Cuba, and Guadaloupe.

References.—Davidson's Diseases of Warm Climates; Dr. Patrick Manson; and Pekelharing and Winkler.

PHOTOGRAPHY AND CRIMINAL INQUIRIES.

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To render a medical report of a post-mortem examination as distinct and as easily comprehended as possible is no easy matter. Few possess the requisite skill, and our language, unlike the French, does not lend itself to definite expression. The highest praise that can be given to such an important document is to say of it that the party who reads it has as clear a notion of the injuries therein described as if he had been present and watched every stage of the dissection. Indeed, two different classes of readers have to be catered for—the strictly professional, who alone can fully estimate the value of the technical terms employed, and also those who cannot follow the intricacies of medical phraseology and who desire merely a plain statement as to the cause of death. Take, for example, a simple case of fracture of the skull. It is only a medical man who can intelligently follow the direction of such an injury, winding among the various cranial bones and at each step of its progress involving the use of uncouth names, the etymology of which is shrouded in mystery. In fact, it requires great descriptive power and a happy combination of scientific and popular phraseology to render such injuries intelligible to any but strictly professional persons. But if this is too often a matter of difficulty even to an experienced surgeon, what must it be to a juryman of average ability who towards the conclusion of an exhausting trial in court listens to a document bristling with the jargon of the schools? A judge has declared that the anatomical term, "sacro-iliac synchondrosis" had, like "Mesopotamia," a remarkably satisfying effect on his ear, but it certainly requires a considerable amount of explanation to render it comprehensible to the average mind.

Now, while accurate and clearly expressed reports are of importance so far as the prosecution is concerned, they become doubly so when the exigencies of the defence are considered. The Crown can by repeated precognitions possibly arrive at satisfactory explanations of the leading anatomical and other details mentioned in the medical report, but the defence, in the case of a poor client, has difficulty in obtaining medical assistance; and even when this is available the medical report—the basis of the charge—is too often so worded as to render it impossible even for a skilled witness to understand its full import. Details of most vital importance, as bearing on the causation of the fatal injuries, are too often so indefinitely expressed as to leave grave doubts as to their exact meaning. I have read such documents, full of sounding phrases and apparently teeming with accurate information, and yet which to the practised eye failed egregiously to supply the very information necessary to support the opinion expressed as to the cause of death. Indeed, it may be said that both the Crown and the

defence are at the mercy of the medical reporters, who, however honest and desirous of discharging their important duty, fail from want of experience and of power of expression to give a clear description of what was found on dissection. This, while specially to be feared in country districts where the opportunities for medico-legal practice are rarely afforded, is met with alike in town and country. I remember the first official dissection at which I was present. Associated with me was a senior member of the profession. It was a case of exposure of a newly-born infant. After what seemed to be an ordinary investigation, yielding no very definite results beyond establishing the fact that the child had survived its birth, it was luckily proposed to examine the throat, when a mass of soft dough was found accurately fitted to the upper strait of the air-passages and moulding itself into the interior of the larynx. This satisfactorily explained the death, and was described by my co-inspector, who dictated the report, as a "doughy mass in the pharynx." It so happened that at the time there was a public scare as to a new and formidable disease—viz., diphtheria—which, unfortunately, has never left us. Our report was read by the authorities as indicating death from natural causes, "the doughy mass in the pharynx" being looked upon as a graphic description of an unusual disease. But, in the language of correct description, "the doughy mass in the pharynx" became a mass of dough in that important cavity. The mistake was accidentally discovered; but in the detection of such a crime allow a few days to elapse and the best directed efforts of skilled officials are of little avail.

The remedy I propose for all this uncertainty is the more general use of photography. At present this is limited to the identification of the criminal, but with the unusual facilities now afforded for the practice of this popular art I hold that it should be extended to all departments of criminal inquiry. In the case just cited two photographs would have been of great interest—one showing the placid features of the deceased and the care that had been taken to shut the lips, the other representing the actual position of the foreign body occluding the entrance to the air-passages. Every county constable, in my opinion, should be provided with a camera, by means of which he could indicate with unerring accuracy the attitude of a dead body and its relations to surrounding objects.

The records of medical jurisprudence afford numerous examples of the importance of determining the position of the body and that of the weapon. This has frequently settled the question of accident, suicide, or murder. No doubt in our police regulations it is laid down that no dead body is to be moved until a medical man has inspected it; but in remote districts of the country, and even in our larger towns, medical assistance is not always available at once. A photograph in such circumstances would be invaluable and would put an end to discrepancies of otherwise trustworthy witnesses as to such simple facts as those connected with the disposition of a body. When the death has occurred in a house it might be of essential importance to determine the position of the body on a bed and its relation to articles on the bed or in the room. I need not insist on the benefit to be obtained in cases of murder and even in those of aggravated assault from at once taking a photograph of the *locus* before any of the furniture is moved, as one of the important questions in such cases relates to the presence of some article of domestic use which might furnish a plausible clue to the causation of some special injury. No doubt in such cases plans of the *locus* are in some instances implied and the furniture may be subsequently arranged as on the fatal night. The element of uncertainty, however, remains and might be avoided by the early use of the camera.

But I go further, and I urge, as a medical jurist, that in every important dissection the assistance of photography should be provided. I believe it was in the Monson case that it was first applied during successive stages of an actual dissection. The circumstances were peculiar. The body had remained for some time unburied, had undergone a long railway journey, and had been interred for nineteen days. Under these circumstances the skin quickly decays and is easily destroyed by a slight touch. Advantage was taken of photography to preserve the appearance of the flesh wound that existed on the neck and which indicated the size and direction of the original superficial injury. Another photograph determined with accuracy the extent of laceration to which the ear had been subjected, while a third showed the amount of shattering of the skull and a fourth the condition of the surface of the brain. Thus every stage of the dissection from without inwards was carefully followed and accurately delineated in circumstances of great difficulty. But although night had set in before the examination was finished the magnesium light afforded perfect definition in the various plates. Of course, the defence benefited by those illustrations and the medical report itself was in consequence much curtailed by simple reference to the various photographs, which were admitted as evidence and included in the list of productions in the case.

Numberless are the applications of photography to forensic medicine. A few of these I have alluded to. I am confident that while the detection of crime will be greatly aided by its use the administration of justice in its widest signification, as protecting the innocent and enabling the accused to bring forward every circumstance that can be urged in his favour, will be materially strengthened.

Edinburgh.

A CASE OF UNREDUCED DISLOCATION OF THE HEAD OF THE FEMUR INTO THE OBTURATOR FORAMEN TREATED BY EXCISION.

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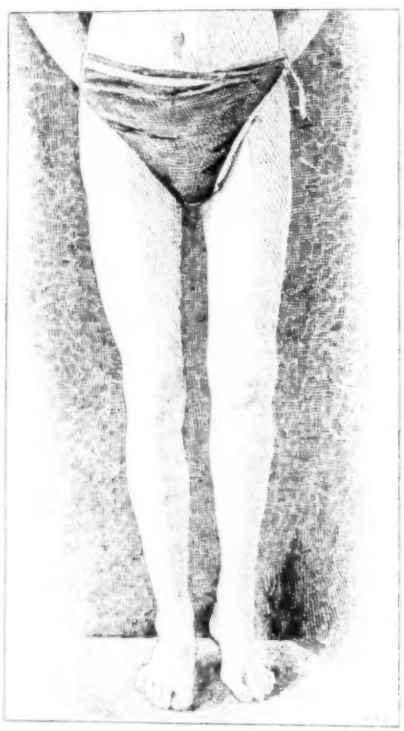
A MAN whilst at sea dislocated the head of the femur and was not treated till eight weeks afterwards at a hospital at Santos. Attempts at reduction were made, both with and without an anæsthetic, but unsuccessfully. On his way back

FIG. 1.

The position before operation. The patient could not, however, stand to be photographed without support, as was shown in the upper (omitted) part of the photograph.

to England reduction was again attempted under an anæsthetic with block and tackle. He was admitted into the Seamen's Hospital, Greenwich, more than three months after the accident, with the left lower limb considerably flexed and everted, the pelvis tilted and buttock flattened. The thigh could be flexed on the abdomen but could not be extended. Both internal and external rotation were limited to less than half their extent. The head of the femur could be felt almost in the perineum and the great trochanter about the centre of the buttock. There was shortening of one and a half inches, and when standing upright the great toe of the left foot did not quite touch the ground, the heel being drawn up and the foot everted (Fig. 1). The patient could only limp and hobble about with a stick. The head of the bone, which was found lying to the inner side of the obturator foramen, was excised on Feb. 18th, 1896. Several contracted bands of fascia and muscle in front of the thigh required division before the limb could be straightened. The head of the femur was found to be denuded of cartilage for about half its extent, and there had obviously been considerable damage done to the parts round the joint by the accident and the previous attempts at reduction. The present condition of the patient is satisfactory. He is able to walk about all day without pain or tiring and his leg is straight with his body. There is a little over two inches shortening, the limbs measuring thirty-six and a half inches and thirty-four and a half inches respectively (Fig. 2).

FIG. 2.



The position after operation. The patient stands alone and is very little inconvenienced by the two inches of shortening.

The scars in the perineum and groin are quite healthy. There is no movement at the hip and practically no eversion when the patient is lying down, though he throws his foot outwards a little when walking.

Green-street, Park-lane, W.

MEDICAL MAGISTRATE.—Mr. John R. Fox, M.B. Melb., has been appointed a Justice of the Peace for the Southern Bailiwick, Victoria, Australia.

A CASE OF SCARLET FEVER TREATED BY ANTI-STREPTOCOCCIC SERUM.

BY A. KNYVETT GORDON, M.B., B.C., B.A. CANTAB.,
ASSISTANT MEDICAL OFFICER, SOUTH-EASTERN FEVER HOSPITAL (METROPOLITAN ASYLUMS BOARD).

A VIGOROUS boy aged six years was admitted to the South-Eastern Fever Hospital on Nov. 17th, 1896, certified as suffering from scarlet fever. There was a history of vomiting and sore-throat on Nov. 14th, "rash all over" on the 15th, and nasal discharge on the 16th. On admission the boy was semi-comatose, the face was pale, and the respiration stertorous; the trunk and limbs were covered with a characteristic punctiform eruption, which was crimson in the groins but elsewhere dusky—almost purple, in fact; there was commencing desquamation on the face; the pulse was only just perceptible at the wrist and could not be counted. The tonsils and palate were much swollen and brightly injected; there was some viscid blood-stained mucus covering the mouth and fauces, but when this was cleared away the tonsils were seen to be free from any deposit. The temperature was 104°F. He was ordered milk and eggs only, with two ounces of brandy in the twenty-four hours. On the next day (Nov. 18th) the temperature varied from 103° to 101·5°, the pulse was very soft (140), and there was superficial ulceration of both tonsils, but less swelling and no deposit or sloughing. The heart and lungs were normal. On the 19th the temperature was 103°; the rash was not so dusky, and there was slight general improvement, the patient taking milk more willingly. There were well-marked urticarial wheals on the chest. On the 20th the child was much worse; the rash was very dusky, the fauces were dry and offensive, the ulceration was very slight, there was less swelling, and a little soft deposit on the ulcerated surfaces. The temperature was 103° and the pulse was 180. The heart was dilated to two fingers' breadth outside the nipple line and to mid-sternum; the first sound was very faint and there was no murmur. A fresh specimen from the fauces showed streptococci and staphylococci, no bacilli at all, and none on cultivation. There was diarrhœa. Ten c.c. of the *sérum antistreptococcique* of the Institut Pasteur were injected under the skin of the abdomen at 5 P.M. The brandy was increased to three ounces. On the 21st the temperature was 103° and the pulse 106 and much stronger; the fauces were less offensive, and there was less swelling. The heart extended from mid-sternum to just outside the nipple line; there was a better first sound. Another 10 c.c. of the serum were given at 12 noon. On the 22nd the temperature was 99·5°; the fauces were clean and not offensive; there was very slight swelling; the pulse was 96 and of much better tension. There was no urticaria, the scarlet rash was fading, and there was free desquamation. On the 23rd the temperature was 98° and the child was intelligent, answering questions, and hungry. He was ordered bread-and-milk and the brandy was omitted. On the 24th the left membranum tympani was red; there was a small perforation in the anterior inferior segment discharging odourless pus. The temperature was normal. He was ordered bread-and-butter and pudding. On the 28th he was sitting up in bed and had fish diet. On Dec. 2nd he was given mince diet. On the 3rd he was up in blankets and on the 12th he was up in clothes.

This case has seemed to me to be worth publishing on account of the rapidity with which the improvement followed the administration of the serum. On admission the child seemed moribund, but he rallied from the effects of the journey in the ambulance and commenced to improve a little till the seventh day of the disease; then he grew rapidly worse and was to all appearances dying from septicæmia. He was semi-comatose, with a failing heart, dusky rash, and diarrhœa. After one dose he rallied, and after the second a rapid improvement took place and was maintained, his convalescence occurring very much sooner than is usually the case with patients who have had any septic symptoms.

With regard to the indications for the use of the serum in scarlet fever, I would suggest that it would be valuable in any case that becomes septic, whether the signs exist from the first and are not in proportion to the severity of the throat symptoms—as in this case, where the throat was not

severely affected—or whether the condition is due to absorption from a sloughing throat or nose—the more common occurrence. In the latter case improvement often begins when the throat is vigorously attacked by constant swabbing with chlorinated soda or some other germicide, but I do not know of anything that has much effect when there is septicæmia with a moderately severe or even a mild throat. In this case the only drug given was brandy, and I do not think the remarkable improvement could be attributed to the stimulant only.

I am indebted to Dr. F. M. Turner, medical superintendent of the hospital, for permission to publish the case.

A NEW METHOD FOR LOCALISING BRAIN LESIONS.

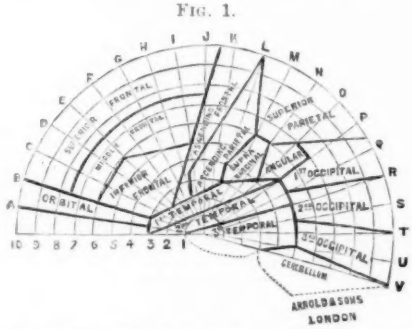
BY ROBERT H. COX, F.R.C.S.Irel.,
SURGEON TO THE IMPERIAL MARITIME CUSTOMS, CHINA.

THAT there is need for a more perfect method of locating the important areas of the cerebral cortex on the overlying surface of the scalp will, I think, be admitted by all, seeing that most of, if not all, the methods generally employed are either limited in their scope or complicated in their application, and many give rise to error by the use of a standard measure—the inch or the centimetre—for varying surfaces. The method which I am about to describe will, I think, be found devoid of these objections. For its use two things are necessary—viz., (*a*) an instrument which I have invented and called (for want of a better name) a cerebro-graphometer; and (*b*) a diagrammatic map of a hemisphere of the brain, prepared from readings made by the use of the same instrument on the cadaver and on casts of the brain *in situ*. This latter may, however, be replaced or augmented by a list of indices made in the same way.

[The author has prepared such a "list of indices," showing in much detail the correspondence between the letters and figures marked on the instrument and various regions of the brain—namely, motor centres (nine in number), sensory centres (hearing and sight), special convolutions (fourteen in number), special fissures (those of Rolando and Sylvius), the middle meningeal artery, and the cerebellum.]

The instrument itself consists entirely of the mechanical device known technically as "lazy tongs" formed into a circle with two accessory loops. The circle or base contains twenty-eight fenestræ and has attached to it

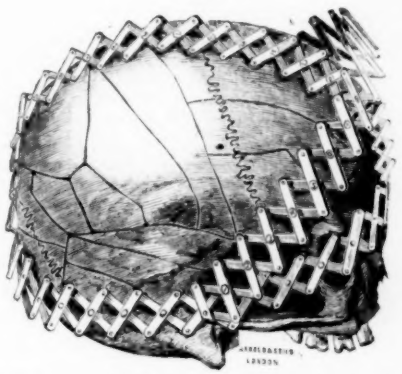
FIG. 1.



A diagrammatic map (on a gnomonic projection) of the external surface of a hemisphere of the brain, showing the boundaries of the lobes and convolutions and the lines of latitude and longitude corresponding to the engraved rivets of the instrument.

externally at four equi-distant parts the two accessory loops by their end rivets (excepting at one place, where the attachment is at the rivet third from the end) in such a way that the loops arch over the circle at right angles to each other, while at the same time they are capable of a hinge-like movement. One loop bears on its central rivets the numerals, beginning at each end with 1 and ending in the middle with 10; while the other loop has the letters A and V in consecutive order from before backwards, the rivet marked T being that connecting the loop with the circle behind. The map (Fig. 1) is made on a gnomonic projection with the radii, or longitudinal lines, marked by letters, and the semicircles, or lines of latitude, by numerals, both of which correspond with the engraved

FIG. 2.



The regions enumerated in Fig. 1 are here projected on the right side of the skull. The illustration also shows the instrument in position for localising.

loops of the instrument. Fig. 2 represents the instrument in position for localising.

To use the instrument it is necessary to extend it in all parts and apply it to the human head, with the rivet forming the junction of the lettered loop with the circle (below that marked "A") on the glabella and the rivet marked "V" (at the extreme end of the same band) to the occipital protuberance, when the loop between these two points should be pressed down to the skull in the middle line; while the circle is also closed on the skull on such a plane that the central rivet, marked 10, of the numbered loop shall lie on the middle line, as shown by the lettered loop. The instrument is thus fixed to the head by the circular band and the lettered loop, while the numbered loop is capable of moving backwards and forwards with a hinge-like motion, during which motion each numbered rivet describes a semicircle of latitude, and the portion of the same band from one of the fixed rivets to the numeral 10, as it extends to each letter, will give the radii of longitude. With the instrument thus in position, to find any given region—say, Broca's lobe—it is only necessary to consult either the map (Fig. 1) or the list of indices for the bearings there given, as $\frac{C}{4}$ (left side), when by moving the 10 of the numbered loop forward to "C" and pressing it down on the scalp the numeral "4" will lie over the part. Rolando's fissure may be found in a similar way by locating each end and joining the two points by a straight line. Localising by this method may be thus summed up: 1. Application of the apparatus. Extend the instrument and apply the end of the lettered loop marked "V" to the occipital protuberance and the other end to the glabella, then press down the loop to the scalp in the middle line. Close the circle round the head so that the 10 on the numbered loop will lie on the lettered loop. 2. Location of part sought for. Consult either the map or the list of indices for the bearings. Place the number 10 on the letter of longitude and press the numbered loop down, when the number of latitude will rest over the part sought for.

Having thus shown the simplicity of the method, for the carrying out of which no recourse need be had to the science of mathematics in any of its branches, and the almost automatic action of the cerebro-graphometer, I would now ask attention while I try to explain its accuracy. As may be seen at a glance, the instrument is equally applicable to all sized heads and forms its own unit of measurement for each, thus eliminating the errors due to the use of standard measure for a varying surface. The two fixed points taken are easily found and are those which have proved most reliable—the glabella and the occipital protuberance. The circular band is placed on that plane of

which Professor Fraser, in his "Guide to Operations on the Brain," has written: "And, finally, the keynote of all the remarks which are to follow is this, that for normal heads after birth the position of any structure of importance in their cavities varies proportionally with the variations of the circumference as given by the circumferential tapes of the respective heads." If this be true, or even approximately so, it points to this plane as the one most likely to afford the minimum amount of variation in the relative position of the cranial contents. Of course, as the markings of no two brains are the same, therefore no mechanical method can give perfect accuracy; but I hold that this method is the nearest approach yet to that goal, which, indeed, seemed to be reached with regard to Rolando's fissure in the only cases which I had an opportunity of testing it. That some of the bearings given may not prove to be the average when tested by others I am prepared to find, seeing that the material at my disposal has been very limited; but the investigation of those whose opportunities are greater would soon remedy this; yet in no case do I expect the average of others to vary from my own to such an extent as may not be included in the circle of an inch trephine. In conclusion, I would add that the cerebro-graphometer is compact, light, durable, and capable of being rendered aseptic by boiling. Messrs. Arnold and Sons, London, are the makers.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

GUY'S HOSPITAL.

A CASE OF ACUTE HÆMORRHAGIC PANCREATITIS; FAT NECROSIS OF THE OMENTUM; LAPAROTOMY; NECROPSY.

(Under the care of Dr. L. A. PARRY, Mr. L. A. DUNN, and Dr. G. NEWTON PITT.)

A STOUT man aged sixty years was admitted on Aug. 25th, 1895, into the paying ward of Guy's Hospital under the care of the resident medical officer, Dr. L. A. Parry, for constipation and vomiting accompanied by abdominal pain. Thirty years previously he had had an attack of inflammation of the bowels, for which leeches had been applied to the surface of the abdomen, and a year before admission to hospital he had had an attack of rheumatic fever. On Aug. 18th he had a slight attack of abdominal pain, which soon passed away. On the 21st he was suddenly seized with acute pain in the epigastric region, which spread over the abdomen and was accompanied by sickness, the act of vomiting requiring some effort. Absolute constipation ensued; no fæces or flatus passed, but some fæces were removed with an enema. The abdomen became distended. Previously to this the bowels had been opened daily. He vomited throughout the 22nd and the 23rd, but when solid food was stopped and only liquid allowed in limited quantities the vomiting abated. The pain of which he had complained was readily held in check with morphia. On admission he was not at all collapsed; his pulse was 70 per minute, regular, and of rather high tension; the temperature was 99° F., and the tongue moist. The abdomen was uniformly, but not greatly, distended; there was no tumour or other abnormality to be detected either by percussion or palpation. There was a dull, aching pain over the abdomen, which was slightly tender on pressure. The rectum was empty and normal, no hernia could be detected, and the urine on examination was found to be normal. He vomited up small quantities of bile-stained fluid, free from any foul odour. Mr. Dunn, and afterwards Dr. Pitt, were called in consultation. A diagnosis of acute intestinal obstruction without strangulation was made. Internal strangulation was negatived by the absence of collapse, and the same reason, together with the absence of distension, excluded volvulus. None of the ordinary symptoms pointed to intussusception. Obstruction from an impacted gall-stone, inflammation in the upper part of the small intestine, and a complete, following upon a chronic, obstruction were discussed, but the history did not definitely indicate any of these. It was thought that the symptoms were not sufficiently urgent to require immediate laparotomy and that they might subside under treatment. He was ordered a pill containing a quarter of a grain of extractum belladonnæ every four hours. He was fed with nutrient enemata and his mouth was washed out frequently with acidulated water. A soap enema was administered and a small quantity of soft fæces of normal colour was brought away. This treatment was continued for eighteen hours. On the 26th he seemed much better, the sickness had ceased, the pulse-rate was 88, the temperature 100°, and forty ounces of urine had been passed, while the pain and distension had not increased. He was now allowed two drachms of peptonised milk every half hour; this was at once followed by vomiting of bile-stained fluid; small doses of soda-water produced the like result, so after twelve hours everything by the mouth—including the pills, which appeared to be causing slight delirium—was stopped. Soon the vomit consisted of intestinal contents and over a pint of foul bile-stained fluid was brought up. The abdomen became more distended and the patient complained of great weakness. On account of the increasing gravity of his condition it was felt that an exploratory operation should be no longer delayed. At 11 A.M. on the 27th Mr. Dunn performed a median laparotomy; coils of distended small intestine presented in the wound; the hernial rings, the appendix, and the gall-bladder were examined and found to the normal. The large intestine was collapsed, but no seat of obstruction could be found. The small intestine was opened and a Paul's tube tied to drain its contents. The operation lasted fifty minutes. Very little gas or fæces escaped by the tube. After some time he vomited up a quantity of foul intestinal contents and died at 3 P.M.

Necropsy.—A post-mortem inspection limited to the abdomen was made next day, where extensive decomposition had already taken place, precluding any bacteriological research. All the intestines, both large and small, were distended. The ileum had been opened six feet above the ileo-cæcal valve. Nothing abnormal was noticed until most of the intestines had been removed, when numerous small white and orange-coloured spots were noticed dotted over the mesocolon not far from the pancreas, but none elsewhere. The abdomen was free from peritonitis. The pancreas was found to be very large and indurated. On section this was found to be the result of infiltration with blood, which was already partially decolourised and was of some days' duration. The fat in the neighbourhood of the organ for a distance of two inches was dotted with areas of fat necrosis, many spots being stained of an orange colour; but the necrotic areas were not immediately contiguous to the pancreas, and at some distance from one another they were also discrete. The pancreas measured seven inches long, one and three-quarter inches vertically, and an inch and an eighth antero-posteriorly. When hardened the pancreas showed large necrotic areas, in which all the nuclei failed to stain, while the tissue was also infiltrated with blood. The adjacent portions of the pancreas appeared normal and practically free from any cell infiltration or evidence of irritation or inflammation. Calcareous salts appear to have deposited in the areas of necrotic fat.

Remarks by Dr. NEWTON PITT.—This case is an extremely instructive one and illustrates the great if not insuperable difficulty some of these cases present in diagnosis. The primary lesion appears to have been an acute necrosis of the pancreas with hæmorrhage. The symptoms presented by the patient, who had previously enjoyed good health and gave no history of any injury, were a passing attack of abdominal pain on Aug. 18th, and on the 21st an acute attack of abdominal pain with sickness and constipation. These continued for four days until he came under our observation. When admitted the pulse-rate was 70, there was no collapse or evidence of either peritonitis or intestinal strangulation. The symptoms appeared to point to intestinal obstruction, and at first, at any rate, the patient's condition did not appear to be one of urgent danger, and it was thought that the symptoms might subside if the stomach could obtain absolute rest. Had Mr. Dunn performed laparotomy at this early stage it is doubtful whether he would have

discovered anything abnormal, as the fat necrosis was limited in amount and was not observable even at the necropsy until most of the intestines had been removed. Under treatment the vomiting ceased for eighteen hours, but returned as soon as food was administered by the mouth, and although the patient was again fed for twelve hours by the rectum only, he rapidly became weaker, the pulse ran up to 88 and was very small, the temperature to 100°, and it was obvious that unless the condition was one that was relievable by operative means he would die.

Since Dr. Fitz's Middleton-Goldsmith Lectures on Acute Pancreatitis in 1889, when he collected fifty-four cases besides sixteen cases of extensive hæmorrhage in the region of the pancreas, several cases have been reported, and the lesion must be much more frequent than was previously supposed, as Dr. Thayer has within the last six years observed six cases on the post mortem table and one at operation. The symptoms which Dr. Fitz found to be most characteristic of acute pancreatitis were sudden and severe epigastric pain without obvious cause, followed by tenderness, vomiting, slight pyrexia, flatulent distension of the abdomen, and complete constipation. These were all noted in the present case. Of the remaining symptoms which he considered characteristic—viz., collapse, prostration, feeble pulse, and the presence of a resonant area with deep-seated resistance lying between the umbilicus and epigastrium and evidences of deep-seated peritonitis—the two latter were never present, and the former only within the last few hours of life. Thayer in 1895 published what he considers to be the second case reported in literature in which a correct diagnosis of acute pancreatitis was made, and the first in which the diagnosis was followed by a successful operation. He also refers to three cases published by Körte, Atkinson, and Cutler, in which an ante-mortem diagnosis was made. The cases in brief are as follows. Thayer's patient was a man aged thirty-four years who had had three or four paroxysmal attacks of epigastric pain with some pyrexia; the presence of a tympanitic tumour in the region of the pancreas was noticed, which, when drained, proved to be a para-pancreatic abscess. Körte has operated upon two cases of hæmorrhagic suppurative pancreatitis, the first of which he diagnosed as an abscess of the pancreas, which he drained, the man dying eight days later. He was aged thirty-seven years, and his illness commenced with sudden severe abdominal pain. The second case was that of a woman who had complained of sudden severe abdominal pain with increased abdominal resistance in the region of the umbilicus. An internal strangulation was diagnosed. When laparotomy was performed a pancreatic abscess was found, which was drained, and the woman survived for twenty-eight days. Atkinson reports the case of a woman aged thirty-five years with a history of attacks of hepatic colic for fifteen months. When seen she had been worse for nine weeks; her urine contained a trace of sugar and there was some pyrexia. She had diarrhœa and vomiting and a tumour above the umbilicus three and a half inches across. The diagnosis was a stone in the common duct with a pancreatic abscess. She died after twelve weeks. Cutler reports a case of a stone impacted in the common duct and hæmorrhage around the pancreas. Fat necrosis was also found with blood-stained fluid in the peritoneum.

In considering the difficulties of diagnosis the group in which there is a tumour in the region of the pancreas, form a comparatively easy group, which, now that attention has been drawn to their occurrence, should generally be capable of accurate diagnosis. A second group is that in which there is evidence of a stone impacted in the common duct, and a third where there is a definite history of abdominal injury, probably affecting the pancreas. Cases which do not fall within any of these groups can but very rarely be diagnosed, as the symptoms are suggestive but not distinctive. The cases of successful diagnosis which have been published belong to one or other of the above groups, with but two or three exceptions. Yet none of the writers have drawn attention to this. In the present instance pancreatitis ought to have been one of the conditions borne in mind, but a positive diagnosis would not have been justified; this uncertainty is also illustrated by the two following cases which have occurred within the past year with practically identical symptoms. The first was a woman aged fifty-eight years, who was seized with sudden abdominal pain, which came and went in paroxysms, abdominal tenderness, vomiting which at first increased in severity, but was relieved when all food by the mouth was stopped, constipation after the first day, a pulse of 100, and subnormal temperature. For some days the patient's condition did not appear to be one of great gravity as there was no collapse and the pulse remained fair; but upon laparotomy a gall-stone was found, as was suspected, obstructing the ileum and was removed. The second case was that of a man aged forty-nine years, who was about to leave the hospital convalescent from an attack of abdominal colic when the pain returned severely and was accompanied by tenderness, vomiting, and complete constipation. The temperature varied from 100° to 103° F. He became very prostrate, collapsed, and his pulse was 114. There was a markedly increased resistance and tenderness in the abdomen above the umbilicus. He died at the end of six days, when an acute membranous enteritis was found involving some six feet of the jejunum and ileum. The symptoms in all three cases were very similar, but in none would a positive diagnosis have been justified. The causation of these cases of acute pancreatitis has yet to be determined. Possibly, as has been pointed out, the process may be an acute infective one similar to that affecting the parotid in mumps, or it may be an inflammatory process spreading to the duct from the gastro-duodenitis. Some cases are undoubtedly due to traumatism and others to secondary changes ensuing on impaction of a calculus in the duct. With regard to the fat necrosis which is so commonly associated with the pancreatic disease, the affected areas are generally irregularly distributed, and it is probable that in many cases, and almost certain in most of those associated with traumatism, that it is due to contact with extravasated pancreatic secretion. The view that the necrosis is the result of a trophic nerve influence remains unconfirmed by further experience.

Literature—Fitz: Medical Record, New York, vol. xv., pp. 197, 225 and 253; Thayer: American Journal of Medical Sciences, vol. xc., p. 396; Atkinson: Journal of the American Association, 1895, vol. xxiv., p. 999; Korte: Semaine Médicale, April, 1896, p. 135; Cutler: Boston Medical and Surgical Journal, 1895, vol. cxxxii., p. 354; Rolleston: THE LANCET, March 14th, 1896, p. 705; Langerhans: Berlin Medical Congress, 1891, and Festschrift, R. Virchow, Berlin, 1891; Cayley: Brit. Med. Jour., 1896, vol. ii., p. 1; Kennan: Brit. Med. Jour., 1896, vol. ii., p. 1442.

HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

A CASE OF NECROSIS OF THE OS CALCIS IN A CHILD; OPERATION.

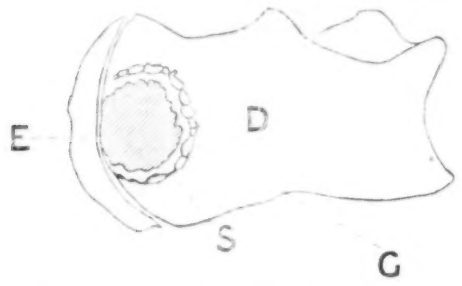
(Under the care of Mr. EDMUND OWEN.)

For the notes of this case we are indebted to Mr. G. Templeton, surgical registrar to the hospital.

A boy seven and a half years of age, the son of a labourer, was admitted to the Louise Ward of the Children's Hospital on Nov. 19th, 1896. His mother said that he had "rheumatic fever" in December, 1895, but he had had no other illness. After this so-called rheumatic fever—which was in all probability a severe attack of pyæmic necrosis—an abscess formed over the back of the lower end of the left ulna, and for fourteen weeks subsequently the child was an in-patient at a country hospital. He was a delicate-looking boy. The right leg was swollen and unhealthy and along the inner aspect there were seven sinuses leading down to the tibial diaphysis, which seemed to be necrosed throughout. This was surrounded by an involucrum of new bone which had given way a little above the middle of the leg. Another sinus existed over the inner side of the right os calcis, through which a probe could be passed to the bare bone. The lower third of the left tibial diaphysis was also necrosed and was surrounded by an involucrum through which two sinuses extended and the lower third of the left ulna could be made out to be necrosed by examining through two sinuses which led down to it. Under chloroform Mr. Owen removed the sequestra from the tibiæ, whilst Mr. Templeton operated in a similar manner upon the ulna. Mr. Owen then enlarged the sinus over the os calcis, and having gouged away some of the surrounding bone extracted a sequestrum of the size of a pea from the interior. The boy's general condition greatly improved after this, all the wounds filling up with healthy granulation tissue, but at the date of the last note (Dec. 3rd, 1896) he was still in hospital.

Remarks by Mr. OWEN.—The case is an ordinary one of acute septic osteo-myelitis, beginning, as is usually the case, at the end of a diaphysis and ending in necrosis. The feature, however, to which I desire to draw particular attention is the necrosis in the os calcis. The association of this necrosis with a similar condition in several of the other

diaphyses suffices to indicate its pathology; but when an os calcis is affected by itself the actual state of affairs may not be so readily understood. Throughout childhood the os calcis consists of a diaphysis of spongy bone, with a cartilaginous epiphysis at the posterior surface. At the tenth year this—the epiphysis—begins to ossify, and it becomes fused with the rest of the bone just after puberty. From time immemorial the hinder end of the heel has been peculiarly vulnerable, and if a boy happen to have it struck or otherwise hurt the vitality of the delicate bone-tissue recently deposited at the growing end of the diaphysis—that is, immediately anterior to the junction-cartilage—is lowered. And if it so happen that at this time there are staphylococci circulating in the child's blood they will probably seize upon that tissue, determine a localised Haversian thrombosis in it, and an almost inevitable



Necrosis of os calcis. D, Diaphysis of os calcis. E, Epiphysis. G, Wall of granulation tissue lining cavity. S, Sequestrum.

necrosis. The heel then becomes extremely tender and in a short while the skin over it is found to be red and hot; after a time the acute symptoms subside. The presence of the dead portion of the diaphysis determines a growth of granulation tissue in the surrounding bone, and in due course the pea-like sequestrum is detached by it and then lies loose in a suppurating cavity which is walled in with granulations. If the case be allowed to drift on nature will have to arrange for the extrusion of the sequestrum, which she generally does by forming an abscess on the inner or outer side of the calcaneum. But sometimes she is not so skilful in her operation, but by clearing an upward track for the evacuation she involves the posterior astragalo-calcanean joint in septic inflammation, the destructive process extending thence into the ankle-joint itself. I have had to perform Syme's amputation in such a case and have subsequently been able to trace out the pathological sequence of events described above with the utmost clearness. For clinical purposes the os calcis must be regarded as one of the long bones, with a shaft and a single epiphysis like the clavicle. The delicate tissue at the growing end of the diaphysis is very apt to become, especially after injury, the area of cultivation of staphylococci, which determine septic thrombosis and necrosis. Persistent deep-seated tenderness in the os calcis of a child, with, perhaps, swelling and œdema or redness about the heel, should suggest exploration. For if art does not come to the assistance of nature it is possible that the septic disease may extend into or around the astragalus and wreck the ankle-joint.

RADCLIFFE INFIRMARY, OXFORD.

A CASE OF COMPOUND FRACTURE OF THE ROOF OF THE ORBIT; TREPHINING; RECOVERY.

(Under the care of Mr. A. WINKFIELD.)

RECOVERY after punctured wounds of the base of the skull with cerebral injury inflicted through the orbit is so rarely seen, even at the present day, that we are pleased to bring before the notice of our readers the account of one which is an exception to the rule. The reason for this fatality was well put by the late Mr. Hulke[1]: "In no class of cases is the surgeon more likely to be put off his guard as to the exact nature and extent of the injury. At first all that may be apparent is the slight injury of the external parts—a trifling wound of the upper lid, and sometimes not even this, for the instrument may have slipped under the lid and left merely a patch of ecchymosis in the conjunctiva. Brain symptoms there may be none. Two or three days may pass over, during which the patient goes about as usual; then brain symptoms make their appearance, sometimes suddenly, and the patient dies in the course of a few hours or days and the true nature of the case is revealed only in the post-mortem room." This class of injury combines the dangers of a punctured wound with the introduction of foreign bodies and septic material and the dangers of a wound of the brain substance. There is no doubt that it is not the wound of the brain alone, for wounds of the frontal lobes are less dangerous than those of other parts of the brain, and injuries resulting from the lodgement of a gun breech in the orbit and brain injury are less fatal than punctured wounds from sticks or umbrellas, which cause far less injury to the brain. These cases must be treated on the same principles that guide us in the treatment of punctured fractures in other parts of the skull. The wound must be thoroughly examined for foreign bodies (surgical literature contains too many examples of inefficient search), thoroughly cleansed, and provision made for thorough drainage. The importance of these remarks will be apparent when we remind our readers that when investigating this subject some years ago we found that seventeen out of eighteen persons suffering from this kind of injury died. Yet there are recorded cases in which recovery resulted ultimately; two of these are quoted by Sir Prescott Hewitt[2] in his lectures on injuries to the head, whilst others were under the care of Beaumont,[3] Hulke,[4] Laplace,[5] Godlee and Pope,[6] A. F. Hawkins,[7] and Palaillon.[8] We are indebted for the report of this case to Dr. W. L. Fry, house surgeon.

A boy aged twelve years was admitted on the afternoon of Sept. 14th, 1896, with a history that whilst running with a short joint of fishing-rod in his hand he had fallen on the ferrule end, which had penetrated his eye. Upon examination a ragged punctured wound about half an inch in length through the inner part of the right upper eyelid was found. A probe passed some inches through the wound in a backward direction and fragments of bone could be felt and brain matter was seen in the wound; the conjunctiva was bruised and the eyelids were swollen. Under chloroform Mr. Winkfield examined the wound, and with the little finger a fracture could be felt in the roof of the orbit extending far backwards, but no foreign body or depressed or loose bone could be detected; brain matter was escaping freely through the wound, which was cleansed and bound up. On the next day the swelling of the eyelids had increased; the boy's condition was fairly good, but with some twitchings of the left arm. On the 16th the temperature was 100° F.; there was some sanguineous discharge from the wound. Urine was passed involuntarily; the boy was drowsy, but answered questions rationally. On the 17th the temperature was 100°. There were twitchings of both arms and a good deal of restlessness at times. On the 18th the boy's condition was not improving and the discharge from the wound was becoming offensive. Mr. Winkfield trephined with a large-sized trephine just above the supra-orbital margin and enlarged the opening in the bone with cutting forceps. The dura mater projected tensely when the disc of bone was removed. A finger was introduced through the opening and passed along the upper surface of the orbital plate of the frontal bone and detected the fissure fracture, its edges being a little uneven, but no foreign body or depressed bone could be felt; some fœtid fluid escaped when the finger was withdrawn. The dura mater was punctured with a small knife and some fœtid matter escaped. A drainage-tube was introduced through the trephine opening and the disc of bone replaced. Another drainage-tube was passed through the wound in the eyelid. The temperature, which was 102° before the operation, dropped to 99° and remained normal for several days. The tubes were frequently removed and cleansed, and a free discharge took place of clear fluid resembling cerebro-spinal fluid. Shortly after the operation a large crop of herpes appeared symmetrically on

[1] Holmes's System of Surgery, third edition, vol. i., p. 585.

[2] Medical Times and Gazette, 1858, vol. i., 137.
[3] THE LANCET, June 14th, 1862, p. 626.
[4] THE LANCET, July 4th, 1891, p. 15.
[5] THE LANCET, Dec. 19th, 1891, p. 1405.
[6] THE LANCET, June 19th, 1886, p. 1159.
[7] THE LANCET, July 17th, 1886, p. 144.
[8] Bulletin de l'Académie de Médecine, Paris, August, 1891.

both upper arms, the boy got very thin, and some boils appeared upon his back which were opened freely under an anæsthetic. On the 29th he had a rigor, with a temperature of 103°, and he became very ill for a week, complaining of headache, which was relieved by the flow of fluid, he grew noisy and restless, resisted all interference, and became very emaciated. There was great difficulty in feeding him. When the tubes were taken out the fluid continued to flow at intervals, and when the wound was closing a copious discharge of similar fluid came from the nose; he would raise himself upon his pillows and allow the fluid to pour from his nose in a stream. As the fluid escaped the head symptoms were relieved, and when the flow from the nose ceased the scabs over the frontal wound would break down and the flow began then again. The temperature remained slightly above normal until Oct. 13th, when it rose to 103°, with symptoms of recrudescence of the meningeal trouble. The attack lasted three days and then quieted down. The discharge gradually ceased, the boy became bright in himself although very fretful, and he could not recall what had happened the previous day, but he could answer questions with intelligence. After Oct. 18th the temperature remained normal; the boy is able to walk alone, and has laid on flesh, and can read with enjoyment. His temper, which was very irritable, is now quite good and he has a fair memory. There are still granulations over the frontal wound and a piece of bare bone can be felt with a probe. This is probably a portion of the bone replaced after the trephining.

On Dec. 12th the opening was enlarged and this disc of dead bone removed, after which the wound healed kindly.

Medical Societies.

EPIDEMIOLOGICAL SOCIETY.

The Spread of the Plague.

A MEETING of this society was held on Dec. 18th, 1896, the President, Professor LANE NOTTER, being in the chair.

Dr. CANTLIE addressed the society on the Spread of the Plague. We publish the beginning of his lecture in our present issue.

Dr. LOWSON said that his experience of plague extended to over 5000 cases. He had made many observations and never found plague bacilli in the soil, although a smaller dumb-bell shaped bacillus was almost invariably present and had, he thought, been mistaken for it by other observers. He admitted that the upper layers of the soil might ultimately become infected by dejecta. He thought that dissemination by fomites was of great importance, but this dissemination did not seem to take place over long distances. At the close of winter the Chinese pawned or sold their warm garments, and they also sold the clothes of those who died from the plague without any previous disinfection. These customs had a great influence in spreading the infection. Carriage through the air was of slight importance. The infection usually spread slowly and along trade routes. He believed the popular idea that an epidemic among rats preceded each epidemic among men was unfounded. Both men and rats were affected simultaneously, but the disease ran a more rapid course in rats, and hence the epidemic would spread more quickly among them. Pigs were liable to plague, typical bacilli being found. He had been unable to communicate it to pigeons or hens. When calves were inoculated there was a reaction, the temperature rising to 103° F., but no bacilli were found in the blood. The serum of animals so treated appeared to have some prophylactic effect on rabbits. There had been some striking differences between the course of the disease in 1894 and 1896. In 1894 buboes were chiefly in the groin. Convulsions, intermittent pulse, and heart failure were common. In 1896 the glandular enlargements were chiefly abdominal, and nephritis was a frequent complication, while nervous and cardiac symptoms were rare. He thought the recent outbreak at Bombay had come by trade routes, probably from Singapore. There was an epidemic raging at Merv which might possibly be plague, and the disease might have come by that route. The mortality was lowest among western-born persons (18 per cent.), while the mortality of Eurasians was as great as that of the Chinese (80 per cent.). There was little spread except by direct contagion from the patient or from the dust and dirt of the room. The soldiers who volunteered for sanitary duty from the Shropshire regiment were not attacked after it was the practice to disinfect the soil thoroughly before it was cleared out from the houses. He thought that direct inoculation through abrasions was common in 1894, but escaped notice because pure cultures give rise to no inflammatory reaction at the site of inoculation.

Dr. PAYNE said that the description of these recent epidemics corresponded closely with those in Europe in former centuries. It had always been held that a persistent high temperature had the effect of stopping an epidemic. He thought the practical immunity of India was accounted for by the fact that the iso-thermal line of 73°, which involved the plague districts of China, only just touched the north of India. He agreed with what had been said about pestis minor, and considered that there was much evidence of such a modified form of plague in Astrakhan and Mesopotamia. He deprecated the suggestion of giving a new name to the disease.

Dr. MANSON said it must be remembered that non-venereal buboes were very common in the East. Buboes were also common in the "river fever" of Japan, which might possibly turn out to be pestis minor. He thought that cases where the disease appeared on board ship long after leaving an infected port might be due to infection from clothes which had been unpacked in the course of the journey.

Dr. WASHBOURN remarked on the resemblance of plague bacilli to those of various forms of septicæmia in animals. The mode of infection might vary just as in the case of anthrax, being sometimes inoculated by way of the skin, sometimes inspired, and sometimes taken with the food.

Professor CAYLEY (Netley) thought that the absence of the spread of plague in India was due to the cleanly habits of the natives, at any rate in country districts.

Dr. K. MACLEOD doubted if plague even in a modified form was ever present in Calcutta.

Dr. CLEMOW (Cronstadt) said that the epidemic which was mentioned as raging at Merv had decimated the population, but so far as he could gather it was a malignant form of malaria and not plague.

Dr. CANTLIE, in reply, agreed with Dr. Lowson as to the change in type of the second epidemic. He thought there was no doubt about the existence of mild cases, running an atypical course, in which bacilli indistinguishable from those of plague could be demonstrated.

BRITISH GYNÆCOLOGICAL SOCIETY.

Exhibition of Specimens.—Hysterectomy.

A MEETING of this society was held on Dec. 10th, Dr. CLEMENT GODSON, President, being in the chair.

Mr. E. TENISON COLLINS (Cardiff) showed a specimen of Strangulated Ovarian Cyst, and read notes of the case.

Dr. G. ELDER (Nottingham) showed three specimens of Pyosalpinx.

Dr. PURCELL, Dr. ELDER, and Dr. EDGE showed specimens illustrating their papers on Hysterectomy.

Three papers were read on the subject of Hysterectomy:—(1) Fibro-myoma Removed by Pan-Hysterectomy, with a Review of Different Methods, by F. A. PURCELL, M.D. R.U.I.; (2) Remarks Suggested by Four Recent Cases of Hysterectomy, by G. ELDER, M.D. Glasg.; and (3) Fibro-myomatous Uterus Removed by Doyen's Method of Abdominal Pan-Hysterectomy, by F. EDGE M.D. Lond., F.R.C.S. Eng.—In the discussion that followed Mr. MAYO ROBSON (Leeds) said that he was much interested in the subject of shock, referred to by Dr. Elder. Some time ago he read a paper on the Treatment of Shock by Transfusion before the Clinical Society. He was led to adopt this treatment by the resemblance between death from shock and death from hæmorrhage which had been pointed out by Dr. Lauder Brunton. In shock the blood was not actually lost, but it was lost to the circulation owing to its collecting in the abdominal vessels. If this stagnant blood could be set circulating again the patient might recover and transfusion had that effect. It was sometimes necessary to transfuse a second and even a third time, for there might be recurrence of shock just as there might be recurrence of hæmorrhage. He had often been disappointed with the

microscope in diagnosis and he preferred to rely on clinical signs. No microscopist could tell with certainty whether a case were one of fungous endometritis or of malignant disease. The subject of hysterectomy was always interesting, for they were getting nearer to a perfected operation. Jessett's, Lebec's, and Doyen's methods were all the same in principle though worked out independently, and some such procedure would come to be the recognised operation. For his own part he had mostly adopted the intra-peritoneal method, based on Schroeder's, with this modification, that after suturing the peritoneal flaps he brought the stump up to the abdominal wound, fixing the parietal peritoneum round it, and the aponeurotic structures over it. By this means the uterine cicatrix was extra-peritoneal, and there was no chance of adhesions between intestine and stump such as might lead to intestinal obstruction. The only patient he had lost died on the fourteenth day from intestinal obstruction. He had no doubt that the method of the future would be one of the three above mentioned.—Mr. BOWREMAN JESSETT believed that a question of great importance in the future would be the early treatment of myoma by operation. At present patients were told to wait for the menopause; no doubt at this time a few myomata disappeared, but many were not affected. Early removal could be accomplished with safety, but in later stages it was often difficult and dangerous. The most difficult case he had had was a recent one, where the tumour weighed 24 lb. There were universal adhesions. The patient died from shock. Had the operation been performed some years earlier, her life might have been spared. This case was very like the second one of Dr. Elder. The shock was largely due to the removal of a large mass of tissue, but perhaps even more to the separation of intestinal adhesions. He had been much impressed by Mr. Mayo Robson's remarks on the subject of shock and its treatment by transfusion and thought they would all do well to bear them in mind. He believed that before long total extirpation would become the recognised method of dealing with myoma of the uterus; the shock was much less, and in this respect the case closely resembled one of vaginal hysterectomy. Doyen's and Lebec's operations were practically the same as his own, but he believed that all three were worked out independently, well illustrating the tendency of operators in different parts of the world. He had sometimes sent down scrapings for examination from cases where the clinical features pointed to a benign condition, and the report had been that they indicated malignant disease. But he had trusted the clinical signs and found that they went on well. There was the difficulty that the part curetted might not be the diseased part because the scraping did not go deep enough. He noted that Dr. Elder in his vaginal hysterectomies left the appendages behind. He thought that in younger women it was usually better not to remove them, for otherwise the patient was subject to much pain and discomfort at the monthly periods for some time after.—Dr. HEYWOOD SMITH, referring to Mr. Mayo Robson's remarks, said he thought it was generally better in intra-peritoneal cases to leave the stump free in the pelvis, for by this means tension was lessened; and, moreover, he believed that when adhesions occurred the site was usually the place where the ovarian vessels were tied. In spite of the success of pan-hysterectomy he believed that a perfected intra-peritoneal method would give even better results, because it was most important to shorten the duration of the operation. He thought that in young women it was better to leave the ovaries and tubes, if healthy, even if the patient suffered some temporary discomfort with the molimina, because, as Dr. Routh had maintained in a paper read before the society, the ovaries seemed to exert a special action independent of the function of ovulation.—Dr. HERBERT SNOW said that microscopic examination was a fetich to many men. As a matter of fact, clinical data were far more reliable. Many errors were possible, even if a large piece of tissue were available. The microscope could prove a positive but not a negative condition.—Dr. BALDWIN (of Ohio, U.S.A.) said that he had read a paper on Hysterectomy at the last meeting of the Ohio State Medical Society, describing what to many was a new procedure, and based on over fifty cases. He proceeded as follows: After opening the abdomen the most accessible broad ligament was clamped outside the ovary down to the uterus. A short clamp was placed on the ovarian artery close to the uterus. Then with a single cut of the scalpel the broad ligament was divided within the first clamp. The procedure was repeated on the opposite side. Peritoneal flaps were then made, front and back, in the usual way. The uterine artery on each side was seized with forceps and the uterus amputated just above the internal os in a wedge fashion, so as to give two uterine flaps. Each uterine artery was then tied, without including any tissue besides in the ligature. The ovarian artery was drawn out, and similarly tied alone. Occasionally an aberrant vessel would bleed and also require ligature. A piece of gauze was passed down through the cervix into the vagina and left for drainage. The cervical flaps were then brought together after bringing down the round ligaments between them; the peritoneal surfaces were turned in and sutured over. The round ligaments held up the uterus and two new ligaments were formed by the folding in of the peritoneum. When there had been much dissection required or separation of adhesions he drained through the vagina or removed the cervix and passed iodoform gauze into the vagina. Notwithstanding antiseptic precautions he always felt safer if the vagina and peritoneal cavity were separate; and for this reason he generally left the stump formed by the cervix. By attention to the above details the risk of subsequent intestinal obstruction was minimised. He was much pleased to hear Mr. Jessett's remarks as to the early treatment of fibroid tumours. Formerly patients with ovarian cysts were often left till they were moribund before being operated upon; and similarly the practice with fibroids was generally to wait till bad symptoms developed. But the tendency was now certainly to operate earlier. As regards vaginal hysterectomy, they were by no means satisfied in America with the after results—there was too much recurrence. They were, therefore, beginning to adopt a combined vaginal and abdominal operation and to remove the whole of the broad ligaments. At the Johns Hopkins Hospital they were doing even more; they were dividing the pelvic peritoneum posteriorly, and removing the sacral glands. But this, he thought, was carrying operative zeal too far. If the disease were so advanced as to require this treatment it was too advanced, in his opinion, to be touched at all. By the combined method he had so far had no recurrence, but as it was not yet three years since he began it it was too soon to form conclusions. By the ordinary vaginal procedure it was impossible to get beyond the gross disease.—The PRESIDENT observed that he could quite corroborate what had been said by Mr. Mayo Robson, Mr. Jessett, Dr. Snow, and Dr. Baldwin as to the unreliable character of the evidence concerning malignancy supplied by microscopic examination.—Dr. ELDER, Dr. PURCELL, and Dr. EDGE briefly and suitably replied.

NORTHUMBERLAND AND DURHAM MEDICAL SOCIETY.

Exhibition of Cases and Specimens.

A MEETING of this society was held on Dec. 10th, 1896, the President, Mr. WILLIAMSON, being in the chair.

Dr. G. MURRAY showed a case of Locomotor Ataxia with Charcot's Joint. The patient was a man thirty-three years of age, whose illness commenced three years ago with weakness in the knees and lightning pains in the legs. He had now marked ataxia and double optic atrophy. His right hip was swollen and there was a tense, elastic swelling in the joint, with marked grating on movement. The leg was shortened by two inches and a dislocation could be readily produced.

Dr. G. MURRAY showed a Case of Tetany in a child thirteen months old, with characteristic flexure at the metacarpo-phalangeal joints, the flexed elbows, and the adducted thumbs of tetany. The condition exactly resembled that produced in the monkey by the removal of the thyroid. The child improved by taking thyroid gland.

Mr. PAGE showed a girl seven years of age and a specimen of a tumour successfully removed from her lower jaw. The tumour was a central sarcoma (noticed for eight months) which had grown rapidly and was causing great deformity.

Mr. PAGE showed a woman and a Four Months' Fœtus and Placenta removed from her abdomen. She was the mother

of two children, the last being born in 1891. Menstruation had always been irregular since the birth of her first child, so that no diagnostic importance could be attributed to it. A fortnight before her admission to the infirmary she was seized with severe abdominal pain and vomiting. She did not know that she was pregnant. Since the attack of pain there had been a dark hæmorrhagic vaginal discharge. A cystic tumour was felt in the left of the pelvis separate from the uterus. On opening the abdomen a dark-coloured swelling came into view, with a hole in it plugged by clots; there was no blood free in the abdominal cavity. The swelling contained a good deal of fluid and clotted blood along with the specimen exhibited. She made a straightforward recovery.

Mr. PAGE also showed a man fifty-eight years of age who was seized with a sudden severe pain in his abdomen in April of last year. On this occasion he had a frequent desire to micturate, but could pass very little urine. Soon after he had a second attack of pain, which passed off in a few hours. Early in September a swelling was noticed in the epigastric and left hypochondriac region. It steadily increased and he became thinner and had constant pain. On admission to the infirmary a rounded, elastic, smooth swelling could be seen and felt on the left side of his upper abdomen. The abdomen was opened in the left linea semilunaris and a dark-coloured tumour was exposed. It could not be delivered and was incised *in situ*. A considerable quantity of laminated clot such as is found in an aneurysm was turned out of it and no fresh hæmorrhage occurred. The tumour was now seen to be in the lesser peritoneal sac. The opening in it was stitched to the parietes and the cavity plugged with gauze. The fluid removed was tested, but had none of the properties of pancreatic fluid. The patient had much improved in condition and the wound was now superficial. The most probable cause was rupture of a varicose vein.

Dr. CLAY showed a man who after being tapped five times for a purulent pleural effusion had his chest incised and drained. He was sent home cured five months previously, and had returned with all the signs of an extensive pleural effusion on the same (the left) side. On tapping him the fluid was found to be the ordinary clear effusion of simple pleurisy.

The PRESIDENT showed a child who was admitted to the infirmary with a Suppurating Tuberculous Knee. The operation consisted in dissecting out the whole of the diseased structures. The wound had only been dressed once again at the end of six weeks, when it was found to be entirely healed.

Dr. LIMONT showed a middle-aged man who fell from a scaffold three and a half years ago and gave his chest a severe wrench. He then noticed a swelling over the sternum which had gradually increased in size since. Except for some pain in it when at work he has had no symptoms. A large swelling was visible under the upper part of the sternum and the left second, third, and fourth costal cartilages. The skin over it was unaltered and there were no dilated veins. The tumour felt solid and appeared to be slightly moveable. It had eroded the sternum. There was no pulsation in it and no murmur was present. The heart sounds and breath sounds were normal. There were no previous symptoms. Was it an aneurysm filled with clot or a new growth in the mediastinum?

Mr. RUTHERFORD MORISON showed a young man on whom he had recently operated for a Calculus in the Pelvis of the Right Kidney. The incision scar was T-shaped, the vertical portion in the linea semilunaris, the transverse running back into the ilio-costal space as far as the edge of the quadratus lumborum. This was the incision he had introduced for all kidney operations some years ago and still advocated. The advantages of it were that the patient could lie on his back during operation, making anæsthesia easier; that the diagnosis in cases of tumour was verified when the abdomen was opened in the linea semilunaris and a mistake could then be more thoroughly compensated for; that the opposite kidney could be ascertained to be present and fairly normal before the diseased one was removed—a very essential precaution; that better access to the kidney was obtained by this than by any other incision; and that dependant drainage could be secured by this, but not by the abdominal incision alone.

A number of pathological specimens were exhibited by Dr. JAS. MURPHY, Mr. W. MARTIN, Mr. RUTHERFORD MORISON, and Mr. PAGE.

Reviews and Notices of Books.

Diseases of the Eye and Ophthalmoscopy, a Handbook for Physicians and Students. By Dr. A. EUGEN FICK, University of Zürich. Authorised translation by ALBERT B. HALE, A.B., M.D., one of the Ophthalmic Surgeons to the United Hebrew Charities, with a Glossary and 158 Illustrations, many of which are printed in colours. London: H. Kimpton. 1896. Pp. 488. Price 21*s.* net.

THE volume before us has been written by the author because he is of opinion that the best text-books of ophthalmology are too exhaustive, and he has endeavoured to supply the student with a compact treatise in which pathological statements and hypotheses as well as authorities should be referred to only so far as they may be necessary to illustrate diseased conditions and which might prove supplementary and complementary to the clinical study of diseases. The translation we may say at once is creditable to Dr. Hale of Chicago. It reads easily and is as a rule satisfactory, though sometimes needlessly hard words are used, as "diagnosticated" for diagnosed and "ectropionising" for everting, whilst a more elegant rendering of the original might have been given than is contained in the following sentence. Speaking of inflammation of the lacrymal sac the translation given is: "I cannot now discuss the treatment of the nasal mucous membrane; that of the tear sac must first attempt to secure a free passage into the nose, and, second, to restore the mucous membrane to its normal condition." Again, it is hardly correct to say that "a catarrh or a blennorrhœa is due to occlusion of the lacrymal passage into the nose."

The treatise is divided into two parts, the first dealing with the methods of examination, including the means of determining the acuteness of vision and errors of refraction, the sense of light and of colour, the field of vision, and the tests for binocular vision and for strabismus, and giving also an account of the objective methods of examination, such as keratoscopy, oblique illumination, and the use of the ophthalmoscope. The second part is devoted to the diseases of the eye, which are considered in the usual topographical order, each being preceded by a short account of the histology of the part. The observations made by the author are, as a rule, those of an unprejudiced mind, and although they might in some instances have been extended with advantage, yet they are sufficiently intelligible. He calls attention to the treatment of trachoma suggested by Keining, which consists in a firm massage applied to the exposed conjunctiva of the upper lid with a wad of cotton soaked in a solution containing 1 in 2000 of sublimate, but prefers himself massage with iodoform, which does not leave behind the grey coating that may on the following day lead to the postponement of the treatment. Iodoform massage is also less painful. In determining the degree of tension that an eye presents the author speaks in high terms of commendation of his namesake's, A. Fick's, tonometer, but it requires in use an amount of precaution and care that will render its introduction into practice, however trustworthy the results obtained may be, more than doubtful. The fingers are probably still the best tonometer. The dioptrics of the eye and the theory of the ophthalmoscope are fully entered into, and are illustrated by numerous diagrams, some of which are rendered more intelligible by being coloured. For the determination of astigmatism he gives the perference to the shadow test over other methods.

The observations on the lacrymal apparatus are sufficiently sensible. He slits up the canaliculus in cases of constriction of the canaliculi or mal-position of the puncta, and in cases of suppuration of the sac and nasal duct of a chronic character uses a solution of chloride of zinc of the strength

of 10 per cent. He admits, however, that precautions must be taken and that the reaction is very intense. The difficulty of limiting the effects of the remedy seems to be the chief objection to its employment.

In regard to cataract extraction he has always operated with iridectomy and intends to confine himself to that method. The details of the precautions he takes to avoid infection are to be commended. We have arrived at the conclusion that sport in the form of shooting is not pursued by the inhabitants of Chicago, for in the course of a very good chapter on Wounds of the Globe and Orbit, as well as in sections devoted to Wounds of the Cornea, Choroid, and Conjunctiva, scarcely a word is said in regard to gunshot wounds, although these have some special features of their own that deserve comment. As a working man we should like to have Dr. Fick, in the event of injury occasioning slight damage to the eye, on the jury empanelled to award damages. He considers that if the injured person "suffers a loss of 30 per cent. of his working power, and has, therefore, been injured 30 per cent. in his wage-earning capacity, there should be paid him for the remainder of his life 30 per cent. of his wages (income) as compensation." This is preposterous. A very slight injury may impair a man's power to perform certain kinds of work—for example, the cutting of intaglios of superior quality; but it would be, in our opinion, extremely unfair to burden the unfortunate man who has inflicted a slight injury on one eye of such a worker with a charge of 30 per cent. of his previous income for the rest of his life. The natural changes of advancing age prevent any man doing his best work in old age, and other branches of work can be taken up and excelled in, and the opposite eye can be exercised. Suppose a man to be earning £3 a week as a skilled cutter. He receives at thirty-five years of age a slight blow, impairing the transparency of the cornea or his power of accommodation. He expects to live to seventy. Is he to have £1820 or its equivalent given to him? The fact is, no such hard-and-fast rule can be laid down. Circumstances must be taken into account in all such accidents. The subject, which is not often mentioned in ophthalmic treatises, is one of importance and is here well discussed. The problem is mathematically presented by the following formula: $E = V\sqrt{G} \times \sqrt[4]{B} \times \sqrt[3]{K}$, when E signifies the earning capacity, V is the visual acuity, G the visual field, B the excursional field, and K the competitive element—that is, the capacity for obtaining a situation in the labour market. In the appendix there is a curious table for converting metric weights into troy weights, which seems quite out of place in a work on ophthalmology. A table on the relative value of English and metric measures for lenses would have been more serviceable. There is also a glossary of terms used in ophthalmology, with their etymology, which, however, is very incomplete.

As a whole the book is a valuable one and represents truthfully and well the present state of ophthalmic science and practice.

Surgical Diseases of the Ovaries and Fallopian Tubes, including Tubal Pregnancy. By J. BLAND SUTTON, F.R.C.S. Eng., Assistant Surgeon to the Middlesex Hospital, &c. With 146 Illustrations. New and Enlarged Edition. London, Paris, and Melbourne: Cassell and Company, Limited. 1896. Price 21*s*.

MR. BLAND SUTTON has taken advantage of the demand for a new edition of his work on the Surgical Diseases of the Ovaries and Fallopian Tubes to make several alterations, most of which are improvements, among which may be mentioned the addition of a new section on the Diseases of the Pelvic Peritoneum, and a considerable increase in the number of illustrations. As an example of the well-known principle that second thoughts are not always best, we may quote a sentence from the first edition. "*Microscopically examined*, menstrual fluid consists of blood-corpuscles and epithelial cells." In the edition before us this reads: "Menstrual *fluid* consists of blood-corpuscles and epithelium furnished by the mucous membrane of the uterus and vagina." The italics are ours. There are some practical points in the chapter on Irrigation and Drainage as to which other authorities hold somewhat different views from those here expressed. Thus in cases where a drainage-tube is used it is mentioned as a proper procedure that the fluid should be sucked up from it by means of a syringe. It is considered much better practice by many operators to simply empty the drainage-tube with a piece of glass tubing without any suction, which increases the chance of omentum getting into the drainage-tube. Nor do we see in this chapter any mention of the use of iodoform gauze instead of a drainage-tube.

The author seems to us, as might have been anticipated, to be at his best in Part III., which deals with Tubal Pregnancy. The book undoubtedly ranks as one of the best among the standard works on this subject.

Physiologie des Menschen und der Säugethiere. Lehrbuch für Studirende und Aerzte. Von Professor Dr. IMMANUEL MUNK, Abtheilungs-Vorsteher am Physiologischen Institut der Universität in Berlin. Vierte Auflage, mit 120 Holzschnitten. Berlin: Verlag von August Hirschwald. (*Physiology of Man and the Mammalia.* A Text-book for Students and Practitioners. By Professor IMMANUEL MUNK, Director at the Physiological Institute of Berlin University. Fourth edition with 120 Woodcuts. Berlin: August Hirschwald.) 1897. Pp. 633. Price 14*s*.

THE appearance of a fourth edition of Professor Munk's treatise is an indication that it meets the requirements of the German students, and he has done well in correcting and in rendering the teaching of the text-book more precise instead of attempting to make any considerable addition to its size. As the title indicates, the author has introduced many physiological facts that have been drawn from animals, but which illustrate or explain those which are more particularly characteristic of man. Thus, in the account of the blood, the phenomena occurring during the process of coagulation in the blood of the horse are given in some detail, attention being directed to the formation—owing to the slowness with which clotting occurs in this animal, especially if the blood be exposed to cold—of a third layer consisting chiefly of leucocytes intermediate between the plasma above and the mass of red corpuscles below. The rapidity of clotting is given in different animals at four to five minutes for the dog and rabbit, eight minutes in the case of the pig and ox, and fifteen minutes in that of the horse. It is added that, according to Boll, the blood does not coagulate in the chicken before the twelfth or fourteenth day of development. He appears to coincide with the view of Pekelharing and Lilienfeld that the nuclein derived from the leucocytes produces a substance from fibrinogen which does not itself coagulate, but upon the addition of lime salts yields typical fibrin. He gives the proportion of plasma to corpuscles as two-thirds to one-third.

In regard to the restitution of blood after blood-letting he quotes the experiments of Tolmatscheff, who found that in a dog weighing about 24 lb. he was able to take away in seventy-one days, by bleeding the animal about every fortnight, as much as it could be estimated to have possessed at the beginning of the experiment. The body weight of the animal and the quantity of hæmoglobin in the blood rose between the bleedings, whilst the food was kept at the same standard. Hence in seventy-one days it might be accepted that the dog can renew the whole of its blood. A horse can lose upwards of 50 lb. of blood in eight days without harm. On the disputed point of the cause of the first sound of the

heart Professor Munk regards it as due essentially to the sudden tension of the auriculo-ventricular valves, but accepts an additional cause in the muscle bruit, whilst he notices the conclusion of Krehl that it is mainly a muscle sound.

The process of gastric digestion is given, not only in man, but in various animals, and especially in the horse, and a curious reason is given to explain why the horse digests meat badly to the effect that it is because the food is retained for so short a time in the stomach, but the author must have forgotten Ellenberger's observations, which show that the remains of the previous meal, and even of the one antecedent to that, may be found in the stomach of that animal. He mentions, however, that in the Steppes the horses are fed on flesh. In the account of the nervous system we observe that Professor Munk does not fully accept the recent views advanced by Cajal, for, although the text speaks of terminal arborescences, the drawing exhibits direct communications between the cells of the anterior and posterior cornua of the cord.

The urine is discussed in the same general manner as the other subjects. A comparison is drawn between the urine of herbivora and carnivora. That of man is then given in full and contrasted with that of the horse. The senses are considered at moderate length, and it is pointed out that th tapetum in the eye is present in carnivora and especially in nocturnal predaceous animals, in the horse and ox, but is absent in man, monkeys, the pig, and generally in omnivora. It occupies an intermediate position between the vascular and the capillary layer of the choroid.

It will be understood from the foregoing comments that Professor Munk's work, whilst it is primarily addressed to the medical student, has also a secondary object which it very well fulfils of being serviceable to veterinary students and to those who are receiving their education at agricultural colleges. To these it will be exceptionally valuable and may be read with advantage in connexion with Meade Smith's and Captain Smith's treatises as giving the most recent results of physiological inquiry.

Analytical Records
FROM
THE LANCET LABORATORY.

(1) DIGESTIVE BISCUITS; (2) NUTRITIVE BEEF BISCUITS.
(G. VAN ABBOTT & SONS, 6, DUKE-STREET MANSIONS, GROSVENOR-SQUARE, W.)

A MICROSCOPICAL examination of the digestive biscuit shows at once its composition and affords some explanation as to why it is called digestive. The biscuits are made entirely from meal and contain the branny particles in a finely divided state, so that while serving as a mild laxative the otherwise irritating property of the bran is reduced to a minimum. The biscuits are desirably crisp and of good flavour and form a very agreeable food when taken with butter. They are useful where a mild laxative is in constant requirement and preferable in many cases to the continuous employment of drugs. The nutritive beef biscuits are said to contain 20 per cent. of Mosquera beef meal, which is a pre-digested meat powder. Our examination fully confirms this statement, since we found the biscuits to possess a high nitrogenous value, while peptones were easily extracted and recognised by simple treatment with cold water. They afford, therefore, a source of reliable and convenient sustenance.

FILMOGEN.
(THOMAS CHRISTY AND CO., 25, LIME-STREET, E.C.)

Filmogen is a clear, mobile, colourless fluid, which has the same boiling point and other characters as acetone. Acetone is, therefore, the probable vehicle for the material, which on evaporation forms a thin, non-sticky, and flexible film, which does not peel off and is not easily removed by simple washing in water or by any chance rubbing. It affords an excellent protective coating for wounds and possesses the advantage that the ordinary antiseptic remedies are generally soluble in the volatile fluid employed. It is useful, therefore, for applying those drugs which are employed as remedies for the skin. A paper on the employment of filmogen was read by Dr. E. Schiff at the recent third International Congress of Dermatology in London.

NORFOLK FOOD OF STRENGTH.
(GOODRICH, HAZEL, AND CO., METHWOLD, NORFOLK.)

This food possesses a pleasant biscuit-like flavour and, consequent upon its method of preparation, contains a very large proportion of soluble carbo-hydrates. It has been carefully cooked, which process improves its flavour besides rendering it more digestible. In addition to wheat flour it contains a definite proportion of oat flour, which, of course, enhances its food value chiefly in regard to nitrogenous and mineral substances. This cereal food enjoys the advantage of being at the same time not only palatable but unquestionably nutritious.

BROMOSAL.
(JOHN RICHARDSON AND CO., LEICESTER, LIMITED.)

This is a brown alcoholic fluid smelling distinctly of tincture of orange and possessing a strong saline taste. As our analysis showed it is a combination of the bromides of lithium, ammonium, and potassium. It is well known that a combination of the alkaline bromides serves more satisfactorily as a nerve sedative or in the treatment of epilepsy than when a single unmixed salt is employed. The above formula, therefore, is one presenting obvious advantages.

FORMOGELATINE.
(KNOWLES AND PHILLIPS, 47, MINORIES, E.)

Formogelatine is a dry, white, crystalline powder, which is, according to our experiments, quite insoluble in water. As its name indicates it is a true compound of formaldehyde with gelatin containing neither an excess of the one nor other ingredient. It is offered as a substitute for iodoform in the dressing of wounds. For this purpose it is well adapted as a drying powder, while doubtless it possesses latent antiseptic properties from the fact of its being a derivative of the powerful antiseptic formaldehyde.

NEAVE'S FOOD.
(J. R. NEAVE AND CO., FORDINGBRIDGE.)

This cereal food is characterised by an excellent rich proportion of nitrogenous food substances and of valuable mineral ingredients, while the carbohydrates are largely soluble and therefore of easy digestibility. It is not deficient in the all-important phosphatic constituents. The flavour of the prepared food is decidedly acceptable and indicates the care and completeness with which the food has been prepared by dry cooking. It presents in acceptable form all the available nourishing constituents of high-grade cereal food.

(1) RESIDUUM RUBRUM TABLOIDS (VENOUS AND ARTERIAL); (2) CASCARA AND BELLADONNA TABLOIDS.
(BURROUGHS, WELLCOME & CO., SNOW HILL BUILDINGS, E.C.)

Blood as a therapeutic agent was reported favourably upon in an original article in THE LANCET of Nov. 28th. In this contribution it was stated that the administration of dry blood residue, in cases of osteo-arthritis was followed by marked improvement. The preparation was given in the form of Residuum Rubrum Tabloids, which consist of the blood residue obtained by evaporating ox blood in vacuo at a temperature not exceeding 100° F. It is suggested that the value of such a preparation must be referred to

the secretions of the various ductless glands which blood prepared in this way must of necessity contain intact. We find that the residual blood tabloids behaved chemically exactly as blood dried in the manner indicated. It should be added that tabloids are also made containing the residue of arterial blood, and clinical trial is being made with these and the results should prove of interest. The Cascara Sagrada and Belladonna Tabloids are based upon the following formula: Cascara sagrada extract, 2 gr.; nux vomica extract, ¼ gr.; belladonna, ½ gr.; capsicum, ½ gr. Thus the tabloid is designed as a useful intestinal stimulant, while possessing also tonic and laxative properties, which together make the combination well suited in cases of habitual constipation in delicate persons accompanied by feeble digestive functions.

(1) SITOZOEN FLOUR; (2) FARO FLOUR; (3) MALTED INFANTS' FOOD.

(W. HAY, GROSVENOR-STREET, HULL.)

"Sitozoen" flour is nothing lacking in the nourishing food constituents of flour of proper quality. It is enriched by the addition of 20 per cent. of wheat germ, which not only contributes to its nutritious qualities, but makes its flavour more attractive. The preparation, again, is moderately malted, so that there can be no doubt of its high dietetic value. "Faro" flour consists of finely ground wheat meal and contains, as our microscopical examination showed, the branny particles in a fine state of division. The flour is slightly dark in colour, due to the retention of the germ. It is evidently prepared with care and forms not only a useful food, but one of value also in promoting the normal functions of the intestinal tract. Lastly, the Infants' food is strongly malted, a fact which is evident from the strong and pleasant malty character of the taste. It thus contains a rich proportion of soluble carbohydrates, amongst which may be reckoned malt, sugar, and dextrine.

HANSEN'S DISINFECTANT FLUID AND POWDER.

(HANSEN AND CO., 19, ST. DUNSTAN'S-HILL, S.E.)

There can be little doubt of the disinfectant property of this fluid, since it consists of certain active derivatives of coal-tar dissolved in alkali, and on shaking with water a milky fluid is obtained. A microscopical examination of this fluid shows the active agent to be in a very finely divided state, but not, strictly speaking, soluble. In this condition it is admirably adapted for all disinfectant purposes. A noteworthy feature of the preparation is the freedom from dirty colour of the emulsion produced; it looks, in fact, very like milk. The powder contains a small percentage of the fluid as basis. The absorbent consists chiefly, according to our analysis, of crude sulphate of lime, which to a limited extent is soluble in water. The powder is somewhat fine, so that in distributing it a part floats as dust in the air. This is a probable advantage and due most likely to the dryness of the powder used. The fluid is described as non-poisonous and compared with carbolic acid it is probably considerably less poisonous, but we are not prepared to accept that it is absolutely so.

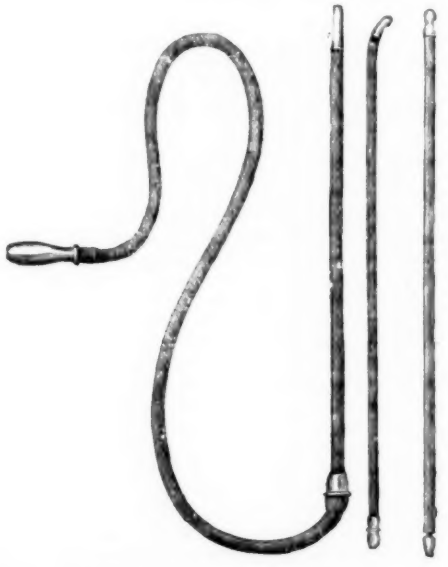
(1) BEEF AND MALT WINE; AND (2) COCA WINE.

(W. GLENDENNING AND SONS, 9, GRAINGER-STREET, NEWCASTLE-ON-TYNE.)

The results of analysis of the beef and malt wine were as follows: absolute alcohol, by weight 15·83 per cent., by volume 19·49 per cent., equal to proof spirit 34·14 per cent; extractives, 15·28 per cent.; containing 0·53 per cent. nitrogenous constituents; and ash 0·38 per cent. The ash proved to contain an excellent proportion of phosphates, and the extractive matters on ignition yielded a mixed odour of malt and meat extractives when burning. The presence of a large proportion of phosphates is distinct evidence of the presence of both malt and beef, while the important quantity of nitrogenous extractives affords further confirmation. In the nature of things such a preparation can hardly be expected to contain any important amount of the real nutrient qualities of either beef or malt, but at the same time there can be little doubt but that the wine is of enhanced value from the fact that the extractives of both these foods are present. On this account the wine is distinctly useful as a stimulant and restorative, and it is certain to present an additional dietetic quality over ordinary port wine. Moreover, the wine is said to be made from genuine Alto Douro port. It is evidently prepared with care and with good materials. The analysis of the Coca wine gave the following results: alcohol, by weight 15·08 per cent., by volume 18·58 per cent, equal to proof spirit 32·56 per cent.; extractives, 11·62 per cent.; and mineral matter, 0·33 per cent. We have no doubt that the wine has been made from the leaf of the erythroxylon cocoa and is not merely a cocain preparation. On incineration of the extractive matters a peculiar leafy odour was evolved. On extracting the wine after suitable treatment with ether the alkaloid cocain was obtained. The basis is stated to be real Alto Douro port, as in the former preparation. The wine is therefore prepared from an excellent formula and is well suited where its administration is indicated.

New Inventions.

AN ACOUSTIC BLADDER SOUND.

PROBABLY every surgical instrument maker has been called upon from time to time to make bladder sounds connected with one or two ear-tubes. We have received from Messrs. Krohne and Sesemann a set of three which were made for the late Mr. James Adams, at that time assistant surgeon

at the London Hospital, upwards of thirty years ago. The makers state that they have since frequently made similar sounds to their clients' own designs, varying in form but not in principle.

THE LANCET.

LONDON: SATURDAY, JANUARY 2, 1897.

IT has been our custom in the commencing number of each New Year to devote a few lines to a review of the work that has been done by us in the immediate past as well as to the setting forth of plans for the future, so that the good understanding which we know to exist between our readers and ourselves may be reinforced by comprehension of our motives. Such brief explanation of our editorial proceedings is the more due because of the magnitude of our claims. For we speak as the recognised organ of the medical profession as a whole. No class, no clique, no private interests are subserved by us, but our welfare depends upon a continuance of the support that for over seventy years has been extended to our efforts by the medical practitioners of the United Kingdom. Two things follow directly upon this position. Firstly, we owe to our supporters as well as to ourselves periodical statements of the manner in which we have discharged our great and honourable trust, as well as indications of how we propose to discharge it in the future. Secondly, it is right that we should avail ourselves of any good opportunity that offers itself to invite our readers to tell us of any directions in which they consider our work might be extended with benefit to them.

During the past twelve months the columns of THE LANCET have been replete with the discussion of two sets of grievances far-reaching in their effects, complicated in their causes, and proportionately difficult of remedy. We refer to the troubles that have fallen upon the profession through the abuse of hospitals by the affluent, and through the abuse of medical service by medical aid institutions. Upon a large class of the profession these two sets of abuses have fallen with exceeding heavy hand, and so serious have the effects been in certain districts that we have considered it our duty to make personal enquiry into the matter. The result of our researches into the working of medical aid institutions reached a definite stage on the publication of the book entitled "The Battle of the Clubs," which may be regarded as an *ad interim* report upon the subject and must not be looked upon as our last word. There remains much to be said. We have been able to prove without the shadow of a doubt that certain of these institutions supply bad medical attendance to their clients, appeal for charity on false grounds, provide their rich members with gratuitous treatment to the detriment of their poorer subscribers, and live chiefly upon the talents of their medical officers, whom they sweat and bully. Examples of every one of these disgraceful facts have been forthcoming, and that the administration of certain institutions is free from blame does not affect the important truth that the administration of others is most faulty. We observe that some of our conclusions have been contradicted. We should have paid more attention to our opponents had they elected to contradict the statements upon which the conclusions were founded, and had not officials of the institutions written with unconscious kindness in our columns and proved by their admissions and their language all that we have ever advanced. During the coming year we shall continue to urge on the profession the importance of combining against these institutions. Let thrift among the poor be encouraged. Let the poor man when sick have the same chances as his richer brethren. But let some of the charity come out of the pockets of the various people who masquerade as almoners under quaint titles, but who, so far from giving anything to the institutions, derive from their working the medical attendance for which they can well afford to pay.

The abuse of hospitals by the affluent is the second subject to which we shall specially devote our columns during the coming year, and upon which we shall endeavour to throw light by personal investigations similar to those undertaken in the matter of medical aid institutions. That the out-patient departments of our great hospitals are terribly abused there is no gainsaying, while special hospitals of all sorts, good and bad, necessary and unnecessary, truly eleemosynary or as truly selfish in their foundation, spring up every day and compete under the name of charity with the general practitioner, offering aid to all sick persons not under treatment at the general establishments. Here again we conceive it to be our duty as far as lies in our power to supply facts to the profession. These facts are very difficult to obtain. When we look back on the past prosperity of the medical profession, observe the present, and forecast the impending future, we know that the abuse of hospitals must be rampant. The increase of charitable or semi-charitable hospitals in number, and the increase of the numbers of out-patients at many of them, prove alike the increase in the tendency of the public to desert the family practitioner and to obtain the gratuitous advice which—being more specialised—they consider to be more valuable. There are proofs of the existence of the abuse, but what are wanted are facts to show on whose side the evil lies, so that we may know upon whom to call for the setting in motion of therapeutical action against a deplorably pathological condition. We beg our readers to coöperate with us in an attempt to deal with this difficult subject. To arrest, if only in some degree, the present abuse of hospitals will be to relieve charity from much imposture, to afford the overworked staffs of the honest charities opportunity of doing their appointed work, to divert to the general practitioners the patients whose care should rightly be theirs, and to place the public in a much sounder as well as a much more honourable position for obtaining proper medical relief. If between us we can effect any portion of this great programme we shall deserve what it is our hope that we may all obtain—A Happy New Year.

THE authorities of medical aid associations and of the various commercial companies look on medical work as if it were a purely mechanical routine. Possibly they do not intend to demoralise, degrade, or ruin the relations between a medical man and his patient. But, all the same, such is the tendency of their methods and of the

system of medical attendance on the cheap which we have thought it our duty to investigate very specially in the last two years, and on which it is our intention still to throw all the light that patient and continuous inquiry will yield. Medical attendance, to be of real use must be a private and personal matter between the patient and his medical man. All attempts to systematise it in every detail must rob it of half its value. The old club system was liable to this criticism, but not so much as the new attendance on thousands by one man, the servant of a committee of laymen and liable to dismissal on giving any of his many masters offence. On this ground alone we are opposed to medical aid associations and to the exploiting of medical men in such clubs as those worked commercially by laymen in Birmingham and elsewhere and on a huge scale by insurance companies which throw in cheap medical attendance as bait to catch their own sort of business. Instead of huge associations which tend to throw all medical work into the hands of one or two men and to sweat them out of all health and leisure, everything should be done, in the interest alike of the working classes and of the medical profession, to promote a personal relationship between families and their medical men that will imply some continuity of attendance, some knowledge of the family "constitution," and some human interest such as does not attach to crowds.

The present year is likely to be one of great importance in determining the relations of the profession to the working-classes—not that other classes are excluded from the medical benefits of friendly societies, but that we do not care about discussing the relations of the profession with persons mean enough to pose as fit objects for charity to the detriment of the truly poor. The subject is now, for better or for worse, fairly before the public. Some of our leading papers have opened their columns to it, and we cannot doubt that the public discussion of it will show three things. Firstly, that there is no chance of the poorest person not getting consideration from the medical profession, and, if necessary, gratuitous attendance in an emergency; secondly, that the profession, while determined to assert its claims to be paid better by the working-classes, in accordance with the increased wealth of these classes and the increased demands made by them on their medical attendants, is perfectly ready to abate its ordinary charges in accommodation to those who depend on weekly wages of a modest amount; and thirdly, that the just claims of the medical men to be treated as a profession, at once learned and liberal, must be recognised. It will amaze the public to learn—as they will learn from these discussions in the columns of our contemporaries—that friendly societies which count their savings by millions, and which represent classes that organise, and organise effectively, for better pay, have been trying to reduce medical remuneration to a minimum which would degrade a labourer, not to say a mechanic; and that in order to do this they become huge dispensaries for the medical treatment of the public. It will further surprise the public to learn that in order to carry out such a wholesale scheme of medical attendance they employ hundreds, probably thousands, of canvassers, who do not hesitate to invite the patients of other medical men to join a new club to be officered by some young and impecunious medical man. All this will come to light, and we confidently look to our contemporaries to vindicate the claims to fair treatment of a profession so costly to enter and so arduous to pursue, and to which the public looks at all hours by night or day for services on which life or death depends.

We call on medical men in every town and in every country district to be true to their profession. Medical aid associations and all others that depend on canvassing are to be avoided and condemned. No medical man would directly employ a person to canvass for patients. He is not in a better position if he takes the patients of other medical men procured by the canvassing agent of an association. *Qui facit per alium facit per se.* It is a sorry commencement for a young man entering the profession to accept a position which his seniors have declined in self-respect and in vindication of their rights. He may by so doing get an immediate advantage at the cost of his profession. But he will never look back on such an entrance into practice with satisfaction. What is wanted is a united profession. There are many towns where such union is realised and where this trouble has consequently been avoided. There are others where disunion prevails and the profession is being degraded. No action of the medical authorities will avail if medical men do not stand together in their respective spheres of influence or if they individually do things and countenance methods which are opposed to the traditions of the profession.

PROFESSOR CROOKSHANK has done so much to call attention to the disease known as actinomycosis that his article which we publish on another page will be read with great interest. It is an admirable review of the subject both from the historical and pathological points of view. There can be little doubt, as Professor CROOKSHANK points out, that many cases of actinomycosis escape recognition and are treated as cases of tuberculosis, sarcoma, or one of the many forms of chronic granulomata. It will probably be within the recollection of many of our readers that when the parasitic nature of the disease was demonstrated by Dr. ACLAND in a case which had occurred in St. Thomas's Hospital there were not wanting those who expressed their belief that the lesion was tuberculous, and who at any rate refused to acknowledge its parasitic origin. That cases have occurred in this and in other countries which have been observed and recorded, but of which the true nature has not been recognised, is evident from the fact that LANGENBECK in 1845, LEBERT in 1848, and Mr. T. SMITH in 1855 made drawings of radiating bodies found in pus or granulation tissue which were without doubt actinomycetes. It is only one more instance of the comparative frequency of rare diseases—"rarity" in many cases, at any rate, depending more on the non-recognition than on the non-existence of a malady. The study of actinomycosis from the point of view of comparative pathology is full of interest, since not only is the disease common to man and cattle, but it is probable that it affects horses, dogs, pigs, and elephants. Sufficient evidence has not yet been collected to enable us to state with anything like precision whether the organism found in

these different species of animals is identically the same, and whether the small variations in structure are only due to the fact that the conditions of growth are not in all cases identical; but it would seem to be certain that a considerable number of granulation tumours which are found widely distributed in the animal kingdom are due to specific organisms which, if not identical, are at any rate closely allied. The relation of actinomycosis to "Madura foot" has occupied the attention of many writers, and though it is probable that the two diseases are closely related, it is, as far as present knowledge goes, improbable that they are caused by the same organism, and this supposition receives confirmation from the experiments quoted by Professor CROOKSHANK, which lead him to the conclusion that the streptothrix Maduræ has not been proved to be transmissible to the lower animals.

Professor CROOKSHANK speaks as a pathologist rather than as a physician, and he does not therefore go into the question of treatment. It is important that as soon as the diagnosis of actinomycosis is established the part should if possible be removed, and this for two reasons: firstly because the disease is, by removal, capable of cure, and secondly because its method of spread is but little limited by anatomical boundaries. The organism infiltrates and penetrates all tissues with which it comes into contact, affecting indiscriminately bones, soft parts, and viscera, so that if left to itself its spread is little likely to be checked, and the foci of disease may be rapidly and widely disseminated by metastasis through the vascular system. If the parts affected are inaccessible to operative measures iodide of potassium should be administered in increasing doses up to the limit of tolerance, for the organism appears to be of low vitality, and there are grounds for believing that its spread may be checked, and possibly entirely prevented, by the use of this drug, especially if associated with the free use of antiseptics, such as iodoform or perchloride of mercury, applied locally to the diseased structures.

THE biography of THOMAS WAKLEY[1] completed in our last number is far from completing the record of one of the most remarkable personalities in the medical history of this century. Endowed with brilliant talents as an orator, indomitable courage, and original enterprise, he started an era of reform in the constitution of our medical schools, hospitals, and colleges of which the last chapter can never be written. The man who, by devotion to science and by assiduous clinical study, adds a new discovery in fact or law to medicine assuredly confers a benefit on mankind; and if a scientific discovery be prolific, as every truth is, so it may justly be said that the man who clears away the obstacles which harass or block the path of medical instruction also does work prolific of good. No man has surpassed WAKLEY in this work. He undoubtedly deserves the credit of being the greatest of all medical reformers. Every medical practitioner of the present generation owes more than can be well expressed to his clear, intuitive genius, to his bold, vigorous, and successful struggle against the abuses which marked the administration of our hospitals and other medical institutions when he began his career. The road to distinction and emolument lay at this time through nepotism, sycophancy, and jobbery of the most ignoble kind. Such a road was naturally repulsive to men of sterling merit and independent spirit. And one direct consequence was that medical instruction, hampered from the very beginning, necessarily imperfect, often simply dogmatic, made a bad foundation for the growth of science. It is certainly true that in spite of all the difficulties interposed by the narrow, irrational policy so rampant in WAKLEY'S time, many gifted men, breaking through the trammels of that policy, distinguished themselves and made important contributions to science. But it is not less certainly true that the diffusion of sound, practical clinical knowledge and skill through the body of the profession, whose immediate duty it was to apply the resources of science to the relief of suffering man, was most seriously obstructed. Thus the growth of science was terribly nipped at the very source. The number of those who might aspire to scientific achievements was unduly limited, and the mental equipment and physical training for the task was thwarted by imperfect, often bigoted, teaching.

The man who led the way and took a resolute part in removing the obstacles to sound and free education is therefore justly entitled to an honourable place amongst those who have earned the gratitude of mankind by diffusing and enlarging the blessings of science. WAKLEY opened the road to many which before was only trodden by a few. A glance back at the early chapters of the biography will reveal the abuses which he so successfully assailed. Some of these abuses still exist in diminished force and still invite steady and persistent attack; and this movement we are happy to see has been taken up by the Associations of Fellows and Members of the Royal College of Surgeons of England, for medical reform is a prime condition of scientific progress. It was through THE LANCET that WAKLEY'S most effective blows were struck. It was a weapon always to the front, giving no rest to the enemy. His next step towards the emancipation of the profession from the tyranny of the corporations and the hospital incumbents was his contention for the special fitness of medical men to be coroners. And he proved his contention by his personal example. He turned his experience as coroner to good account in asserting and advancing the just claims of his medical brethren to reasonable fees for attendance as witnesses and for performing necropsies. Before his time a coroner's inquest was often a sorry farce. The cause of death—the first object of inquiry—was often assumed, declared, or evaded on the most flimsy and arbitrary grounds. The appeal to science was not only a means of safety to the public, but, as he always said it would be, an opportunity of advancing science. He not only opened up a new field of learning, usefulness, and dignity to the profession, but extended the sources of knowledge, for it is before the coroner's court that the science and art of forensic medicine find the most frequent and often the most useful application. A third great event in his career was his election to Parliament. If this event gratified personal ambition it also gave him further power in proving that the interests of the public were closely linked with those of the medical profession. In the House of Commons he was conspicuous as

[1] See also page 55.

an earnest reformer, not alone in medical affairs, but in general politics. He attracted the attention of the House by his zeal, his ability as a politician, and by the force and charm of his eloquence. In doing this he again advanced the claims of his professional brethren to public esteem and fuller representation.

Flagrant wrong is not to be righted by silken, smooth-tongued appeals to the wrong-doer, but by fearless denunciation and strong persistent action. No man more thoroughly believed in this axiom than THOMAS WAKLEY and no man ever gave it more resolute action. No wonder, then, that an opponent so outspoken, so uncompromising, did not fail to arouse envy venting itself in rancorous slander. But any man might well be proud of the generous and noble testimony to his work publicly given by a political opponent, the Leader of the House, the great statesman, Sir ROBERT PEEL. It may be said that in founding THE LANCET, in getting made coroner, and gaining a seat in Parliament he sought and satisfied personal interests and ambition. But to rest here is to take a narrow view of the career of a man fired with the enthusiasm of genius, labouring to uproot evil and to establish truth. Every successful combatant in civil, military, political, and scientific warfare in a great measure selects his own battle-fields and fashions or makes his own weapons. These weapons are an integral part of his being. Rightly viewed, then, THE LANCET, the coronership, and the seat in Parliament were essential weapons for accomplishing the work upon which he had set his soul. And all these weapons are still at work by inheritance, by example, and by trust. We may well say, "He lives in fame though not in life."

Annotations.

"Ne quid nimis."

SEASONABLE CLEMENCY.

COLONEL WHITE and Colonel Grey were released from Holloway Prison on Saturday morning last, their sentences having legally expired. No excessive soft-heartedness, no political bias of one sort or another, and no particular disposition of investments will be required to make general the feeling of pleasure that two more of the Transvaal offenders are free; for whatever the individual complicity of Dr. Jameson's officers in plots, whose existence has yet to be proved before a Select Committee, we cannot escape from the feeling that all but one of the raiders acted under orders. They were seconded from the army to obey those orders, and if they had not done the thing for which they have been punished they would have been disobedient servants. They were caught in a logical dilemma, where the alternatives presented were equally conclusive against them, and without discussion of what punishment, if any, they deserved, we can all rejoice as each one goes through the ordeal and emerges safely. But there is a reason which will particularly appeal to readers of THE LANCET for being glad to learn of the freedom of one of these officers. Confinement had told terribly upon Colonel Grey. He went into Holloway last July weighing fourteen stones; he has left Holloway weighing eleven. What this loss of weight indicates where the loser is not a gross man, but, on the contrary, in hard fighting trim, can be told in a few words. It indicates that confinement has dealt too severely with Colonel Grey, and that what was designed to be salutary chastisement has proved to be torture. It indicates more certainly than streams of supplication from a prisoner's lips a sickness of heart as well as a sickness of body. It indicates that if Colonel Grey's sentence had not fortunately expired Government would have been compelled to relent towards him. With diffidence, but with certainty that we are speaking from sound medical judgment, we would put forward in behalf of the two remaining prisoners a plea for clemency which we know that they will never bring themselves to utter. It would be a terrible thing if the punishment of these unfortunate officers should result in a permanent injury to their physique, yet this may result despite the assiduous and undoubted skill of the medical officer of Holloway Prison. Justice must be done, and the law for the rich must be the law for the poor. This is the wisdom of every sound social scheme, to which no one should lightly ask a Government to run counter. But having regard to the sufferings that Colonel Grey must have endured, we wish to know whether it would not be possible to anticipate the occurrence of such mischief in the cases of the remaining two prisoners. Sir John Willoughby is understood to be a tougher subject than Major White and to be more able to bear his punishment phlegmatically. We are in a position to state that Major White's condition gives grave cause for anxiety. He is weak, nervous, and sleepless, and the ordeal of imprisonment has proved too much for him. Has not the cause of justice been vindicated sufficiently? If so, we would earnestly beg the Government to let these two remaining victims of their obedience go free. It was not intended to punish them in such a way that even the remotest chance of a permanent break-down of health should occur. Justice has been done: let clemency begin with the New Year.

THE QUEEN'S COMMEMORATION FUND.

THE unparalleled length and glory of Her Majesty's reign is a matter for commemoration in the most impressive manner. Money should be forthcoming in any needed quantities, but it is very desirable that it should not be given hastily. There is a tendency to "rush" in this matter. To be first in the field is an obvious advantage, and those with pet schemes are already acting on this principle. Still, those who have the means and the disposition to contribute to some object that will worthily signalise an unprecedented event in English history will take time to think. The object should be one which expresses the progress and the humanity which have been the notes of Her Majesty's reign and to which she and her family have made the most helpful and sympathetic contributions. It may well be that more than one great object will be proposed. But it is sincerely to be wished that some central body of wise and influential persons in whom the public have confidence may be chosen to invite contributions to a central fund to be devoted to certain objects. The use of such a central body would be to define these objects and to try to define the proportional importance of them. All, of course, would have to be done with the approval of Her Majesty, but doubtless that would be forthcoming for any purpose which seemed to commend itself to the public mind. There is one purpose pre-eminently calculated to excite public interest, the achievement of which would shed a lustre on the Queen's reign and the century which is nearing its end. We mean the removal of the debt on our public voluntary hospitals. If any institutions represent the progress and the humanity which have marked the Victorian era they are our hospitals, where the pain of operations has been annihilated and the success of measures for the saving of life has been developed to a degree

scarcely equalled in all the previous centuries. The debt on these hospitals is having a discouraging and in some cases a demoralising effect on them. They are ceasing to be institutions only for the poor, but are catering for those who are not poor, and are even trying to make a little money out of such catering to maintain what remains ostensibly for the use of the poor. Half a million of money would go far to free these institutions from debt and give them a new start for a new century. We urge this great claim on the people of England and especially of the metropolis. We do not wish to be drawn into any disparagement of nursing institutions, which have been somewhat prematurely put forward as a primary object for the loyal enthusiam of the subjects of Her Majesty in this memorable year. We cannot admit that they have any such claim as hospitals have. They spring out of hospitals and find in hospitals the training which makes them useful. Every district with a little self-sacrifice and without any heavy responsibility can secure and can pay for its own trained nurse for the poor. To put nursing institutions before hospitals at a supreme moment like this will be robbing Peter to pay Paul. Besides they have had their turn. At the Queen's Jubilee Her Majesty most graciously gave £70,000 to found the Institute for Nurses for the Poor, and a great impetus to the supply of this want has been given by her generosity. About 600 nurses have been so supplied to places all over the country. It is now the turn of hospitals and their claims are overpowering and unanswerable.

OYSTERS AND DISEASE.

MR. WYNTER BLYTH, medical officer of health of Marylebone, refers in his monthly report for November to a series of six cases of gastro-enteritis, one of which subsequently developed enteric fever, in which the evidence pointed strongly to the consumption of oysters as the cause of the mischief. The six persons in question dined at a well-known London restaurant and the only articles of diet which they consumed in common were beef and oysters. The oysters are stated to have come from Colchester, and Mr. Blyth refers to Dr. Bulstrode's detailed report on that locality to show that thereabouts there are "layings" liable to sewage pollution. It is, however, necessary to differentiate in the matter of layings in the vicinity of Colchester, since the fattening beds of the Colchester Oyster Company, as well as their storage pits, appear from the Local Government Board report to be practically free from pollution. Unfortunately, however, in that part of Essex there are certain pits and layings which do not belong to the Colchester Oyster Company, which were at the time the report was written liable to contamination in a high degree, and it is, too, further pointed out in the report that no oysters should be despatched direct to market from the bed of the river Colne itself. We would especially insist upon the importance in all cases such as those referred to by Mr. Blyth of ascertaining, if such be possible, the exact whereabouts of the pits or layings from which the suspected oysters were obtained. Unless this step be taken injustice may be done to oyster merchants and others whose beds, &c., are free from pollution. Mr. Blyth also states that in some other cases of enteric fever notified in November the sufferers were in the habit of consuming considerable quantities of oysters. In connexion with the general question of oysters and disease, Mr. Blyth points out that accidents such as those to which he has referred may be obviated by a proper supervision of the oyster industry. This subject we recently dwelt on in a leading article in our columns,[1] and we can only reiterate that fresh measures of control must follow upon the Local Government Board report. We notice that in some quarters the oyster merchants even go so far as to deny the existence of layings and pits liable to pollution. Those who do thus are simply aiding and abetting the destruction of an important national industry; but, on the other hand, those—and they consist of the more intelligent men in the trade—who are anxious to bring about the closure of the polluted layings and pits are taking the proper steps to re-instate the industry in the confidence of the public.

[1] THE LANCET, Dec. 12th, 1896, p. 1695.

PRIVATE HOSPITALS v. MEDICAL PRACTICE.

IT would appear from some of the methods employed in the name of medical practice that one of the least essential aids in this department of work is the practitioner himself. Mutual interests depending on long acquaintance and intimate technical knowledge are no longer needful, it would seem, to bind together his patients and himself, nor indeed for that is any personal bond of value. Such, at least, is the impression conveyed to a casual reader by such circular addresses as that lately issued by "The London Galvanic and Massage Hospital." This institution, which is, of course, self-supporting, represents the newest departure in medical touting. It is virtually a pay-hospital, of the kind which its title suggests, in which the fee is regulated by the pocket of the patient. The hospital, according to its published prospectus, is under the control and supervision of a solitary director, who is responsible to no authority but his own. The nurses employed are, moreover, as regards their training, native to the establishment. As a bid for the patronage of credulous persons this venture may have some success. The attempt, however, is at least a bold one in times when our national intelligence is supposed to be increasing, when the competence of medical practitioners is as general as it is admittedly high, and when massage and electricity form part of the well-worn armament of medical skill. There can be no doubt, therefore, that touting such as appears in every line of the comment before us, when viewed in connexion with such considerations as these, ought to be utterly discredited by rational people.

TRAUMATIC CANCER.

MANY parts of the East of London are infested by gangs of roughs, who attack wayfarers, maltreat and rob them, and yet, so far as police-court cases show, it is only occasionally that any punishment follows these deeds of violence. It is easy to understand that the police find great difficulty in apprehending any of these men, for they disperse rapidly in the dimly-lighted streets and as readily reassemble. Numbering often more than a dozen, they can without any anxiety as to the result set upon anyone they may meet, and unless he submits quietly to be robbed they quickly render him insensible by blows and despoil him of his money and valuables. The danger is a growing one, and in our opinion needs exceptional measures for its repression. Some of the accounts read more as if they had occurred at the commencement than at the close of the nineteenth century. These remarks are called forth by the report of a recent inquest, at which it was stated that the woman on whose body the inquiry was held had been severely kicked by a gang of men about four months before death. A fortnight after receiving the injury a cancer appeared in the right breast, and from this she died. The question whether mechanical injury can cause malignant disease is a very interesting one, but in this case it may be definitely decided that the injury had nothing whatever to do with the appearance of the cancer. The short interval—two weeks—between the blows and a noticeable growth is far too short, and, moreover,

at the necropsy it was found that secondary deposits had appeared "all over the body," but "especially in the lungs"; such widespread extension of malignant disease must certainly have taken more than four months. But apart from this case there exists a very general opinion both among the public and in the profession that a local injury, such as a blow, is a very common starting point of a malignant growth. That mechanical injury, such as the rubbing of a rough tooth, may lead to the appearance of epithelioma of the tongue is, of course, certain; but the proof that a blow on the breast without any skin lesion can give rise to cancer is not satisfactory. If such an injury has any influence in predisposing to the appearance of malignant disease it is probably due to the production of a *pars minoris resistentiæ* which is favourable to the development of a new growth. The frequency with which a blow is put forward as the cause of a cancer of the breast is probably to be attributed partly to the popular belief in its efficacy and partly to the satisfaction which most people feel in accounting for any disease from which they may suffer. Blows on the breast are far from rare, and the probability of a blow having preceded the development of a new growth is very great.

SYSTEMATIC POISONING.

WE read from time to time of systematic traders in murder and robbery and professional poisoners, but we question whether it would be easy to beat the history of crime in this direction recently brought to light in the trial of a native prisoner at a court in Cawnpore. The criminal in this instance is a native of India, one Bhadaiyan Kori, who systematically carried on his trade as a professional poisoner for a considerable time for the purposes of plundering his victims. He employed the agents usually adopted in India for the purpose—viz., dhatura and probably arsenic also. His method was to join travelling natives and to mix his drugs with their food in order to rob them of their clothing and effects. The evidence against him was of a conclusive kind, and as he made a complete confession of his crimes there is no room for doubt about the matter. It is, we believe, a curious fact that in cases of poisoning by dhatura in India a difficulty sometimes arises from the poisoner cunningly simulating illness and imitating the symptoms of the poisoned so that a medical man is likely to be deceived and to apply the same remedies to all alike—to the criminal poisoner and his victims. But there was nothing of this sort in the present case.

VACCINE VIRUS IN LIQUID FORM.

OUR New York correspondent writes:—"The Health epartment of New York has determined the most valuable part of a vaccine vesicle by the following experiment. A typical vesicle was chosen, and the crust, the underlying pulp and base and the serum exuding after the former were removed were collected separately. Each was mixed with glycerine in the proportion of 60 per cent. vaccine matter and 40 per cent. glycerine, then thoroughly comminuted in a mortar, and the products were used in the multiple vaccination of children. The pulp showed by far the best, the crust the next, and the serum the poorest results as determined by the percentage of successful vaccinations. It was concluded that the largest proportion of the active virus is contained in the pulp. Therefore the virus now used is in the form of a glycerinated vaccine pulp. Before using the virus derived from an animal, first, the animal from which it was obtained is sent to necropsy and the organs are examined for any evidences of disease; and, secondly, two samples are given, one to the bacteriologist and the other to the medical tester of virus, and no virus is issued unless the reports of the pathologist, bacteriologist, and clinical tester are all satisfactory. In all the primary vaccinations made during September and October by the department vaccinators in which the results are known, more than 700 in number, there was not a single failure. The virus is a syrupy, opaque, brown emulsion of uniform consistency. It is put up in capillary tubes containing each enough for a single vaccination and in phials of two sizes, one containing one-fifth of a cubic centimetre for ten vaccinations, and the other containing one cubic centimetre for fifty vaccinations. In using the new virus the skin is scarified in the usual way and a drop of the liquid virus (discharged from a capillary tube by blowing out the contents with a rubber tube furnished for the purpose) is then thoroughly rubbed into the scarified area with a slip of wood, which accompanies each tube."

PUERPERAL MORTALITY.

WE have received a little pamphlet by Dr. W. Williams, D.P.H., on Puerperal Mortality, reprinted from the Transactions of the Epidemiological Society of London, and although, as he tells us, he has nothing exactly fresh to communicate, nevertheless, the fact that 4000 mothers in England and Wales still die in childbed every year is one that more than justifies renewed efforts to elucidate the causation of such a lamentable mortality with a view to its prevention. Puerperal mortality may be divided into two classes—the mortality due to puerperal fever, and that due to what is called "the accidents" of childbed, such as placenta prævia and eclampsia. During a period of forty-eight years—from 1847 to 1894—the mean annual mortality rate for puerperal fever has been 2 per 1000 registered births, and that for the "accidents" of childbed has been 2·9. If the period of forty-eight years in question be divided into four periods of ten years each and one period of eight years, and the mortality during each such period for puerperal fever and for the accidents of childbed be tabulated, it will be seen that while during the period 1847-1854 the puerperal mortality from "accidents" of childbed was 3·01 per 1000, it subsequently declined till during the period 1885-1894 it stood at 2·41. On the other hand, as regards the mortality from puerperal fever, the rate which during the period 1847-1854 was 1·72 had increased till during the period 1885-1894 it had reached 2·53. There is no doubt that to some extent this apparent increase may be accounted for by the fact that since 1881 the Registrar-General caused letters of inquiry to be sent in cases where women of child-bearing age were certified as dying from peritonitis, pyæmia, &c. Still, as Dr. Williams says, this improved certification has now been many years in operation, and we might have expected to see some decline in the rate; but, on the contrary, the fact is that from 1881 to 1894 "there has been a higher sustained mortality (from puerperal fever) than in any other previous or corresponding period." That puerperal fever is both more liable to attack primiparæ, and is also more likely to prove fatal in them than in multiparæ, appears to be certain. No doubt the explanation of this as suggested is the right one—viz., that tears and lacerations are always present to a greater or less extent in primiparæ, while in multiparæ this is not so. Every laceration is a possible source of danger, since it may allow of the entrance of septic matter. As regards the greater mortality of puerperal fever in primiparæ, Dr. Williams is able to speak of an epidemic that came under his personal investigation. In twelve cases in which primiparæ were affected eight (or 67 per cent.) died, while in fourteen cases where multiparæ were affected four (or 28·6 per cent.) died. Full particulars of this epidemic are given and are well worth attention, though the main points are sufficiently familiar.

Thus, for instance, nearly all the fatal cases in each locality were attended by the same midwife. An interesting point is that a number of cases attended by the infected midwives escaped; but this may be easily accounted for by supposing that in such cases there were no lacerations suitable for the entrance of septic poison, or that, owing to the midwives' hands being accidentally cleaner than usual, the supply of septic matter was temporarily deficient. Dr. Williams in investigating this epidemic interviewed some of the midwives concerned, who were so ignorant that they admitted that they did not even know that they might have been the means of spreading the disease, and of course they knew nothing of the means of disinfecting themselves. Yet puerperal fever has been clearly shown to be a preventable disease. It has been practically banished from the best managed lying-in hospitals, where, apart from the antiseptic system, the conditions are necessarily extremely favourable for its prevalence. The sustained mortality due to the prevalence of puerperal fever *outside* lying-in hospitals shows that the conditions under which women are confined outside these hospitals have not shared to the same extent in the improvements effected inside them. The great point to be insisted on is that in all cases personal responsibility should be felt as regards puerperal fever. If adequate antiseptic precautions are adopted by the person attending a midwifery case, in the way especially of thoroughly scrubbing the hands and nails with soap and hot water, and subsequently, after rinsing off the soap, scrubbing them in a solution of corrosive sublimate 1 in 1000 *before* making any examination, then the mortality from puerperal fever will steadily decline outside lying-in hospitals as it has done inside them—and not till then.

"CHEAP CONSULTANTS."

AN edifying correspondence has recently (Dec. 24th, 26th, and 28th) appeared in the *Times*, following a leading article in that journal in which the writer deplored the frequency of errors of diagnosis in medical practice. Dr. Balmanno Squire, with an enthusiasm which reminds one of "nothing like leather," recommends as a remedy the calling in of a consultant as a routine practice to settle the diagnosis, considering that "practitioners of even less than the average attainment are competent when once the question of diagnosis has been accurately solved to conduct the treatment of the case on, at the least, fairly sound lines." Without stopping to discuss whether treatment of a recognised disease is even comparatively such a simple matter, we may examine the way in which Dr. Balmanno Squire proposes to put his remedy in the way of everyone. The well-to-do are still to go to the senior consultant with fees as at present, while for others an intermediate class of "cheap consultants" should be formed composed of younger men who have "taken up some speciality and would see patients at a half or a quarter of the fee charged by the present consultant." He thinks that "the practitioner need not fear that he will lose his patients to the cheap consultants." But there seems even now to be a widespread conviction among practitioners that they do lose many of their patients to high-priced consultants. We regard the suggestion as an undesirable and impracticable one, which would intensify the jealousy which from time to time shows itself, and the development of specialisation which is implied has probably more drawbacks than advantages. The ranks of consultants are now filled by those who have achieved success and those who, hoping ultimately to do so and having facilities for clinical study, are endeavouring to create a reputation. The lowering of fees for these junior men might give them less leisure for the investigation and study which render their opinion valued later; it would certainly lower their own status and would lead to incessant friction between all classes of the profession. But it seems to us that Dr. Balmanno Squire, and perhaps the general public, unduly belittle the general practitioner. The mistakes in diagnosis do not always lie at his door, and many of the alleged cases of wrong diagnosis are due to misunderstanding, the consultant speaking of "displacement of bone" where the practitioner had spoken of "dislocation," or of "facial paralysis" when the local medical man had diagnosed "Bell's palsy." The reprehensible practice of patients going on the sly to obtain a consultant's opinion, without letting him have the advantage of even a written statement of the previous history, is responsible for many of these misunderstandings and supposed "mismanaged cases." The value of a second opinion is often extreme, but its full value can only be obtained by a consultation in the full sense of the term. The frequency of these "mismanaged" cases seems to be much exaggerated and to be daily diminishing as the education of each practitioner is now so wide and complete, and we believe that the way to remove the reproach is to improve the practical teaching of the student and not to adopt some revolutionary measure, such as the creation of a large class of "cheap consultants," with a boundary line between them and general practitioners even less definite than that which now separates the two classes.

SYRINGOMYELIA WITH ARTHROPATHY.

IN the December number of the *American Journal of the Medical Sciences* Dr. Dercum and Dr. Spiller record a very important case of this rare and interesting disorder. The patient was a man aged forty-five years, a native of Sweden, unmarried, and a labourer by occupation. There was nothing significant in his family or personal history until about three years before his admission to hospital, when he strained his back with some heavy lifting. He was in bed for a day, but experienced no subsequent ill effects until about the time he was admitted in 1883, when he began to have pains in his legs, a tight feeling round his waist, and weakness in his lower extremities. He gradually after this developed the usual signs and symptoms of spastic paraplegia, rigidity and powerlessness of the legs, loss of control over the sphincters, exaggeration, followed by disappearance on account of excessive rigidity, of the deep reflexes, and marked impairment of sensibility on the legs. It was also found that the sense of temperature was entirely lost in the right arm and the right side of the neck, and there was some analgesia over this limb. In 1888 it was observed that his right shoulder had become swollen, the joint surfaces grated, and there was some effusion into the joint. There was no pain associated with the changes and the effusion went on increasing, and finally there was rupture of the capsule and infiltration of the subcutaneous and muscular tissue. There were no other peculiar clinical features in the case except the occasional development of small abscesses and of bed-sores. The psychical condition was one of considerable irritability. He finally died from exhaustion in 1895, nearly thirteen years after his admission. On examination of the spinal cord after death there was found to be in the terminal part a considerable area of gliosis around a small central cavity. In the sacral cord the cavity was larger, but this was not an extension of the central canal, which was occupied by a mass of proliferated cells. In the lumbar region the cavity was larger and there was degeneration in the crossed pyramidal tracts. There was now considerable thickening of membranes extending as high as the upper dorsal region. Throughout the thoracic region the cavity extended through the posterior horns to the pia mater, and above the first thoracic segment the cavity became limited to the right posterior horn; the

degeneration in the lateral columns was still present, but much more extensive on the right side than on the left. The right anterior column was also degenerated and so were the columns of Goll. The details of the description are very interesting and so is the interpretation of them which the writers offer; and not the least important part of the paper is the description of the condition which was found in the affected shoulder-joint. There was complete disappearance of the head and surgical neck of the humerus and minor alterations in the other bones. Such a case as this carefully observed clinically during a prolonged period and systematically examined after death is extremely valuable, and we congratulate the writers on the important results which they have achieved by the care and accuracy with which they have made and recorded their observations.

ARSENICAL SOAP.

WE are glad to see that the manufacturers have been touched by the recent prosecutions in regard to Arsenical Soap. In the *British and Colonial Druggist* of Dec. 25th are two advertisements which show very well the harm which such contradictory decisions as were given upon Dec. 6th and Dec. 12th bring about. Advertisement No. 1 says:—

ARSENICAL SOAP.
DR. MACKENZIE'S.

DEAR SIR,—With a view of preventing any possible further prosecutions under the Food and Drugs Act, Wholesale and Retail Houses are requested to immediately exchange all Dr. Mackenzie's Arsenical Soap which they have in stock for that which we are now manufacturing under a new formula, and which is guaranteed, amongst other ingredients, to contain a uniform though small quantity of Arsenic easily found by Analysis. ..... I am of opinion that it is better to immediately exchange all present stock for that which we are now manufacturing with, amongst other ingredients, an increased amount of arsenic, and which will fully comply with the Food and Drugs Act. Chemists can send what they have in stock direct to me, and also advise by post the quantity returned, and I will, of course, pay carriage, and exchange it. The new soap will in future have printed on the labels "New Formula," so that there shall be no chance of retailers selling by mistake any more of the old stock. I will indemnify all chemists and druggists against prosecution, provided that they will exchange their present stock immediately, and sell only that which bears the imprint on the outside of label "New Formula," and where required will give a warranty that Dr. Mackenzie's is a genuine arsenical toilet soap.

S. HARVEY.

Possibly now if this soap is used indiscriminately by the public there will be some cases of arsenical poisoning. That, however, is for the public to guard against. Advertisement No. 2 says:—

ARSENICAL SOAP.
JAMESON'S.

The Proprietor of the above preparation calls the attention of the Chemists of the United Kingdom to the decision given at Brentford on Saturday, 12th December, 1896, in which it was held that the presence of Arsenic, even the minutest quantity, was sufficient to exempt dealers from prosecution under the Food and Drugs Act. In the manufacture of Jameson's Arsenical Complexion Soap the machinery is so perfect that not only is Arsenic to be found in each tablet, but severe testing has shown that the percentage is also uniform, and consequently each and every tablet may be sold with the utmost assurance; and in order to make the trade feel as confident as does the Proprietor, he takes this opportunity of informing them that he will in every instance defend them and indemnify them should action (which after the judgement quoted is not very likely) be taken against them, and, further, he is prepared to give them a warranty with each delivery of the Soap, which the trade has only to show to the authorities to immediately quash the indictment. It is not for the Proprietor of Jameson's Arsenical Complexion Soap to instruct the trade as to the manner in which it shall conduct its business, but he takes this opportunity of declaring that he will, after this notice, defend any Chemist against prosecution under the Pharmacy Act, provided he has himself fulfilled the statutory obligations.

Please note that the holders of Jameson's Arsenical Complexion Soap are requested to send a post-card notifying the same, and a warranty, which, as before stated, is a certain protection against prosecution, will, with a supply of labels for complying with the Pharmacy Act, be forwarded per return.

W. JAMESON, * * * * * *

We cannot see why sellers of mixtures should not be compelled to label their preparations—e.g., "Arsenical soap. This soap contains $\frac{1}{1000}$th (or whatever may be the proportion) of a grain of arsenious acid to the pound." "Finest East India coffee. This coffee is a mixture of three parts of chicory to one of coffee. It draws a fine, rich, syrupy liquor, &c., &c. It goes much further than Mocha." If this were made the law purchasers would at least know what they were buying.

THE ROYAL INSTITUTION OF GREAT BRITAIN.

THE programme of lecture arrangements before Easter has just been issued. The Christmas lectures by Professor Silvanus P. Thompson commenced on Dec. 29th The subject is Light, Visible and Invisible. The lectures will be continued on Jan. 2nd, 5th, 7th, and 9th, 1897. Professor Augustus D. Waller will commence a series of twelve lectures on Animal Electricity on Jan. 19th and Lord Rayleigh will discourse on Electricity and Electrical Vibrations in a series of six lectures commencing on March 6th. The Friday evening lecturers embrace the names of Professor Dewar, Professor John Milne, Mr. Shelford Bidwell, Sir Wm. Turner, and others. Among the subjects to be dealt with are The Properties of Liquid Oxygen on Jan. 22nd, Recent Advances in Seismology on Feb. 12th, and Curiosities of Vision on March 5th.

THE LANCET RELIEF FUND.

THE report of the almoners of THE LANCET Relief Fund appears to-day in another column and shows that the modest but, as we trust, serviceable charity which they dispense is still drawn upon to the full extent of the resources placed at their disposal. A comparison of the present report with those of previous years shows that of the two classes of benefits provided gifts tend to prove more serviceable than loans. The loans, though less numerous than the gifts, are on an average larger in amount, and at the end of their first year of administration the almoners reported that they had actually exceeded the gifts—by a few shillings—in their aggregate sum. That, however, has not happened in any subsequent year, and taking all the eight years together we observe that out of a total disbursement of £2531 there has been given £1488 10*s*., lent £1042 10*s*. Repayments on account of these loans have now come to be a source of income to the fund, which was in this way augmented during the past year by £25 10*s*. As the loans are made free of interest these repayments represent only the return of capital, and do not form a source of income in the ordinary sense of that word. A very satisfactory feature of the present report is, that although the number and amount of the benefactions have been as great as ever, the number of applicants has been smaller than on some previous occasions, and notably than in 1895. This has a double significance. In the first place it follows from this that the number of cases in which it has been necessary to turn an applicant away unrelieved has been less. In point of fact, out of thirty-seven applicants twenty-nine, as already mentioned, have been relieved. This is of itself matter for congratulation and it also conveys the suggestion that the scope and purpose of the Fund are coming to be better understood than was at first the case. We have had repeatedly to ask our readers to note that only cases of pressing and temporary necessity are eligible and to beg them when asked to recommend an unsuitable case to explain the difficulty at once to the intending applicant and so save further and more serious disappointment. The almoners draw attention to this point again in the present report, and we are glad to draw from their figures the inference that their observations made on previous occasions have produced to some extent at least the desired impression. This work is so intimately associated with THE LANCET that we feel ourselves privileged when noticing it to express our heartfelt thanks to the almoners and auditor who have during the past year officiated in the administration of the fund. Sir John Russell Reynolds has passed beyond the echo of our acknowledgments, but to Dr. Wilks, his

successor in the chair of the Royal College of Physicians of London, to Mr. Christopher Heath and Sir William Mac Cormac, who have presided in succession at the Royal College of Surgeons of England during the past year and to Sir Richard Quain, the President of the General Medical Council, who have assisted in the disbursement of the Fund and personally interested themselves in its work of charity, to Sir Henry Pitman, who from the commencement of the Fund has audited the accounts, and to the many brother practitioners throughout the country who have undertaken the duty of investigating on the spot and advising upon the merits of applications we tender our hearty thanks for their valuable and gracious help in the cause of our distressed brethren and their dependents.

THE CHIEF RABBI AND VACCINATION.

THE Chief Rabbi has only done his religion and his co-religionists justice in causing a contradiction to be published to the statement reported to have been made by a Jew that there was a religious objection to vaccination. The Jews are too sensible in their religious views to hold such an opinion. The Chief Rabbi disclaims it altogether through the medium of the *Jewish Chronicle*, and says, with a force that all Christian teachers would do well to imitate: "Since this process [vaccination] has been proved by the most eminent authorities to be a safeguard against small-pox, and inasmuch as an Act of Parliament renders its use obligatory, a Jew who refuses to have his child vaccinated at the proper time is guilty of a grave infraction both of the Divine law and of the law of the land."

J. PICKERING, F.R.G.S., F.S.S., F.S.A., ETC.

THE gentleman possessed of the above array of letters has recently confided in an interviewer at Leicester concerning his treatment of fever. The interview has been published and very interesting reading it is. Mr. Pickering was asked "if he had had opportunities of testing the accuracy of his conclusions ..... and in answer he mentioned a number of cases which may thus be summarised:—

"1. In January, 1895, two cases of chicken-pox were cured in one day by the application of baths.

"2. The same month he was called into the country to see a young woman who had recently nursed a married sister through an attack of scarlet fever. She was sickening for the same disease. Baths were administered at the house of a friend. The first stopped the fever, the patient partook of gruel, a wet compress was applied round the head, and the patient slept quietly. Next morning at 11 she had a second bath, she was down to tea at 5 o'clock, and out the next day.

"3. The next month a maid-servant was seized with fever symptoms. After three baths her health was restored, and during the treatment she attended to her household duties.

"4. In March, 1895, a young girl residing with her parents near Leicester was suffering from all the symptoms of scarlet fever; temperature 102 degrees, bad throat, pains in neck and back, prostrate, sleepless, and depressed. A bath was administered by the mother, which removed the pains, and enabled the girl to swallow better. She had some food and slept; next morning she had a second bath, and in the afternoon a tepid bath. At 4 P.M. she was out with her father for a stroll in the lane."

"Mr. Pickering mentioned other cases of a similar nature, and gave the names and addresses of the persons concerned. Further instances, as stated, have come to our knowledge since from independent sources. In the course of the interview Mr. Pickering spoke of the law of cure. Asked to describe the law, he said:—

"It is the law of elimination, discharging at the skin the special poisons which had gained access to the blood, just as bile is discharged at the liver."

We like the physiology, and we should much like to know whether Cases 2 and 4 had scarlet fever, and if so how many people they infected afterwards. Mr. Pickering is gracious enough to say that it would be better to have a physician at the sanatorium, but he also says "you do not want a medical man to give you a morning bath; the thing is absurd. Then why do you want one to give a bath at any other time?" It would be a pity to spoil this singularly logical argument by any comment. We see by the daily press that the Leicester Corporation Sanitary Committee have decided that "this treatment should, subject to the discretion of the medical officer of health, be fully applied to patients in the hospital." According to Mr. Pickering, "extremes of temperature are destructive of germ or organic life in the blood. Cold water at hot water 36° F., or at 102°, are conditions under which no fever can live." As Mr. Pickering's patient No. 4 had a temperature of 102°, why did he give her a bath? We had thought that 212° or so was the germicidal temperature.

THE PLACE OF CORPORAL PUNISHMENT IN OUR LEGAL CODE.

NOTWITHSTANDING that there still lingers in the minds of some persons an aversion to the use of the lash as a means of punishment, there are not wanting on all hands utterances like the recently expressed opinion of Mr. Justice Day, which advise corporal punishment in certain cases. We admit our sympathy with this latter view on the subject. A sense of degradation is frequently attributed to sufferers from the corporal penalty. But this is in many, probably in most, of the cases in which it has been inflicted an imaginary association. It is hard to understand how so fine a feeling of personal propriety should reside in the violent and criminal assailant of man or woman. The association of such ideas with such practice is itself ludicrous because so forcibly unnatural. Juvenile offenders, on the other hand, must, we should say, be positively benefited by the short and sharp lesson of personal chastisement. They are thus spared that corrupting and enervating contact with prison life which is to their youth like a moral poison. In view, therefore, of the fact that the number of this class of offenders has lately much increased and that by habitual evildoers prison life is even sought for as a species of livelihood we should not be sorry to have an extended trial afforded to the more drastic and more expeditious method of correction. In the case of one cowardly form of crime—garotting—it has already been employed, as our readers are aware, with distinct benefit.

"APHASIA OF THE RIGHT HAND IN A DEAF MUTE."

UNDER this heading Professor J. Grasset of Montpellier publishes[1] a brief but explicit account of a remarkable disability which recently came under his observation. Charcot described agraphia as "aphasia of the hand," says Professor Grasset, but the comparison, though striking and to a certain extent apt, is not absolutely precise. The only true aphasia of the hand is when a deaf mute who has never learned oral speech loses the faculty of conversing manually. Such cases are necessarily extremely rare, and they are likely to become still more so, because intelligent deaf mutes who have not acquired speech are becoming fewer and fewer every day. In order that true aphasia of the hand may be differentiated three factors are necessary. First, an intelligent deaf mute who cannot speak orally; secondly, the incidence of the aphasic condition upon that individual; and thirdly, the non-existence of brachial paralysis sufficient *per se* to account for his inability to converse manually. These three factors are co-existent in the person whose case is given in detail. The patient, aged about fifty years, is a gouty subject and presents all the signs of general arterio-sclerosis. Two years ago the symptoms of progressive cerebral softening set in gradually in consequence of thrombosis of certain arterial branches in the left hemisphere. That there is no sensorial aphasia is evident from the patient's ability to read his newspaper and to understand questions when formulated in the ordinary deaf-and-dumb alphabet. If asked to point out printed words or letters he invariably does so correctly. Formerly he was very active and capable in the conduct of his affairs, and although his memory and

[1] Le Progrès Médical, Oct. 31st, 1896.

quickness of comprehension have both failed considerably he still exhibits a fair amount of intelligence. Owing to a combination of circumstances he never acquired oral speech, but it is said that he was able to converse by means of the manual alphabet with exceptional volubility, using his right hand almost exclusively. He could also write very well in the ordinary way, but at present he is incapable of shaping letters with his right hand either symbolically or on paper. When asked to go through the deaf-and-dumb alphabet he can make an A after several attempts, and sometimes a B, but never has any further success; whereas with the left hand he experiences no difficulty whatever. His right forearm is partially paralysed, but far from sufficiently so to account for the agraphia. He uses it when eating and drinking, can grasp an object firmly, raise his hand to the top of his head, &c. The movements of the limb are only partially impeded, whereas the patient's power of expressing himself therewith is totally destroyed. He may consequently be said to furnish an example of true aphasia of the right hand. Professor Grasset finally comes to the conclusion that in a deaf mute a centre becomes developed in the cerebral cortex which presides over manual language, but is distinct from the centre whence the ordinary movements of the upper extremity are controlled. The two centres must be separate from, and independent of, each other, inasmuch as they are susceptible of artificial dissociation through disease. The manual language centre is physiologically allied to that for writing: are they likewise allied anatomically? and ought they to be located in the second frontal convolution rather than in the third? Professor Grasset is of opinion that his case supports these hypotheses, but does not establish them.

MEDICAL PRACTICE IN SOUTH AFRICA.

A CORRESPONDENT writes to us:—"The following facts may prove useful to those who look on South Africa as a good field for practice and who intend to emigrate there. The profession here, as at home, is vastly overcrowded, and a man coming out here must be prepared to bring enough money to keep himself for a year or so until he either obtains some appointment or his practice becomes lucrative. I can confidently state that every small village and town in Cape Colony and Natal is well supplied with medical men, and in the principal towns—such as Capetown, Johannesburg, and even in Buluwayo—the supply largely exceeds the demand. Everything here, as elsewhere, is obtained by local influence, and an outsider naturally has no chance against the colonial. This fact applies to every trade and profession out here. Locum tenencies and assistancies are extremely difficult to obtain as they are few and far between. Moreover, it is essential to have a good knowledge of the Dutch language, and besides there are always plenty of experienced men ready to take up these appointments, as I have found more than once to my cost. Fees certainly are higher, but then living costs at least double, even in Capetown, and in Johannesburg about treble the amount of that in England. An English practitioner can have no idea of the isolated rough life which one is forced to lead in the up-country districts, the centre of which may be 100 miles from the nearest railway station, and even there professional competition is frequently quite as keen as at home. The majority of medical men here are either of Scotch or German nationality. In view of the following facts I must advise men in quest of practice not to come here just now or they will be doomed to disappointment:—(1) Rinderpest, which by devastating the country must affect medical fees; (2) the unsettled relations between the Dutch and the English all over the colony; (3) the depression in the Transvaal; and (4) the uncertainty of the future of Rhodesia, all Stock Exchange reports notwithstanding. I am writing this letter chiefly to catch the eye of the junior members of our profession, and I shall feel sufficiently repaid if I am the means of preventing disappointment in the minds of those who think that South Africa is an El Dorado for the medical man as well as for the artizan."

IS CYCLING HEALTHY?

THE lengthy correspondence which has recently appeared in the columns of a contemporary has, as might have been expected, elicited a wonderful diversity of opinions. Some have nothing but good to say of the cycle; others record all sorts of aches, pains, and nervous affections coming on after a ride. One rider attributes these entirely to the use of the bicycle as apart from the tricycle owing to the unconscious strain involved in keeping the former upright. The plain truth seems to us to rest upon a very simple basis. Cycling is not good for everybody, and if abused is good for nobody. Within the last two years people of all ages have rushed into cycling in the most haphazard way. They have regarded neither age nor previous habits nor their physical condition. Small wonder then that many have found evil rather than good come from an exercise which inevitably demands a heavy expenditure both of nervous and muscular force. Probably just the same outcry would have arisen if the same class had suddenly taken to running or rowing or mountain climbing without any previous preparation. It is easy to preach moderation, but it must be remembered that moderation is a term varying with the individual, and everyone finds for himself how much he can do. With regard to the strain involved in keeping up a bicycle and keeping a look out it is probably no more than that involved in walking down the Strand without "cannoning" against others, but many of us have done the one from childhood while the other is but a newly-acquired accomplishment. There is no need to make a bicycle a very wheel of Ixion, especially with a "safety," for it is easy to get off and equally easy to remount; therefore the cry "You must go on or you will fall" seems to us to ignore the fact that we are reasoning animals.

THE RELATION OF SCARLET FEVER TO INSANITARY CONDITIONS.

THAT scarlet fever is infectious in a degree which probably varies in different years and outbreaks is a sufficiently obvious fact, but as to the exact channel by which infection is given off and conveyed there is not only considerable difference of opinion but also a lack of reliable evidence. That the disease is infectious during at least certain periods of the desquamative process is clear, but it is not altogether established whether infection is carried by the separated particles of cuticle or whether possibly desquamation is only associated in point of time with infection. Similarly with regard to the acute stage of the disease there are many who assert, upon what evidence it is not easy to ascertain, that the disease during this stage is not infectious; but, on the other hand, cases have been recorded which tend to show that even the pre eruptive stage is not free from infective power. In a word, the evidence upon which beliefs are founded is somewhat scanty and unsatisfactory. Dr. Niven, the medical officer of health of Manchester, in his current annual report, while accepting the usually accredited means of spread, discusses as to how far scarlet fever may at times be disseminated by means of insanitary conditions, such, more especially, as defective privies and pails, which lead to soil pollution. Dr. Niven has collected information from a large number of houses which had been invaded by scarlet fever, and he finds that conditions of filth such as those referred to are more intimately associated with scarlet fever than they are, in Manchester at least, with diarrhœa and

enteric fever. He thinks that the frequent presence of albuminuria in scarlet fever, as also at times of nephritis, together with the not infrequent occurrence of diarrhœa and the swelling of the solitary and agminated glands of the intestine, all point to the infection of the disease being given off by the excreta, and that the pollution of the soil by this means may lead to the spread of the disease, a theory which would seem to receive some support from the seasonal prevalence of scarlet fever. Dr. Niven's views are, so far as we are aware, original, but they nevertheless deserve attention. Perhaps, if infection be thus given off by means of the excreta it might naturally be expected that a polluted water-supply will at times be found responsible for an outbreak; but again it may be that the micro-organisms of scarlet fever have but a very limited vitality in water.

THE BIOGRAPHY OF THOMAS WAKLEY.[1]

IN another column will be found a leading article suggested by our recently concluded Biography of the Founder of THE LANCET. We think it seemly, in view of the kindly eulogistic terms in which it is written, to state that it is from the pen of an old and valued contributor who was a member of the staff of THE LANCET when Mr. Wakley was the Editor and who was entrusted by Dr. James Wakley with the duty of writing the "In Memoriam" leading article on his father which appeared in THE LANCET of June 7th, 1862, page 605. It will be evident, therefore, to our readers that the writer, from his long personal knowledge of Thomas Wakley, is eminently qualified to render a tribute to his work and its influence on the medical profession. For this tribute we, the present Editors of THE LANCET, son and grandson respectively of its Founder, offer him our cordial thanks. Our gratitude is also due to the biographer, whose long and difficult task is (at all events, in its serial form) now concluded. We hope, however, to have an opportunity of expressing more adequately our sense of our indebtedness to him when the Biography is republished in book form.

"A CASE FOR THE MEDICAL COUNCIL."

SUCH is the heading of the report in the *Standard* of an inquest held on Dec. 24th by Dr. Wynn Westcott on the body of Bertram Lett, aged eleven years, the son of a gardener. The evidence showed that he was pushed downstairs on a Monday while playing at a neighbour's house. The leg became inflamed, and the boy's mother called in "Dr." Taylor, 240, Hoxton-street. On the Saturday "Dr." Taylor said the inflammation was spreading to the brain. On Sunday he called with another gentleman, whom the mother did not know. On the Monday the boy died. It transpired at the inquest that Taylor had attended the family for nine years, and that the mother believed he was a "qualified doctor." She paid him 3*s.* for five visits. The coroner's officer tendered an order for a post-mortem examination to Taylor, which he declined on the ground that he was not qualified. This officer said the name on the premises was Dr. Watts, who died eleven months since, but that Taylor lived there now. Mr. Hewitt Oliver, L.R.C.P. Lond., &c., deposed that he made the post-mortem examination and found septic pericarditis. "Dr." Taylor, on being examined, admitted having attended the deceased and family for eight or nine years. He said he was Dr. Hooper's assistant, having formerly been Dr. Watts's assistant. He attended people whose cases were not serious in Dr. Hooper's absence. This evidence was confirmed by Mr. Edmund Hooper, who said he had every reason to rely upon Taylor's treatment, and attributed his not being registered to the death of his father. The coroner asked Mr. Hooper why he did not remove "Dr. Watts's" name. Mr. Hooper said "he did not like to destroy it, it was so beautifully done." The coroner pointed out to the jury that the mother believed that Taylor was a "doctor." He intimated his intention to report the case to the General Medical Council. The jury added to their verdict of "Accidental Death" that Taylor ought not to have attended without disclosing the fact that he was unqualified. And they also said he was deserving of censure. The offence is a very real one, and it is amazing that any medical man should be found to associate himself as a principal with one who commits it.

[1] See also page 47.

"THE TRAINING OF NURSES IN RELATION TO REGISTRATION."

IN THE LANCET of Dec. 26th, 1896, we referred to a protest by certain members of the Royal British Nurses' Association against the registration of asylum attendants. Through the courtesy of Dr. Outterson Wood we are now in a position to place before our readers some facts relating to the other side of this question which must materially influence any decision upon it. We cannot do better than quote from Dr. Wood's letter. The attendants whose registration is desired are, he states, "thoroughly trained in their special branch of nursing." Furthermore, their qualifications are to include "three years' training in a hospital or asylum for the insane containing not less than forty beds, the certificate of the Medico-Psychological Association for Proficiency in Nursing (a certificate we may remark which entails a searching examination into the general principles of trained nursing), and a certificate of moral character." The education of these attendants is carried on under direct medical supervision. It is intended to register them as a distinct class of nurses and thus to afford the public a reliable guarantee of their proficiency. We are pleased to recognise in the course of training here explained those provisions for a sound, general, as well as special knowledge of nursing principles which, as we have already stated, are sufficient, and alone sufficient, to confer a title to registration.

CHILD LIFE DURING THE REIGN OF QUEEN VICTORIA.

AFTER a very fitting manner the National Society for the Prevention of Cruelty to Children proposes to celebrate the sixtieth anniversary of the Queen's accession. The same appropriateness appears in the place of meeting chosen for this purpose—namely, the Albert Hall, London. The object of this celebration will be to make public the conditions affecting the life and work of children at the beginning of Her Majesty's reign and to trace the legislative processes acting up till the present time which have brought order, decency, and happiness out of what was once a chaos of neglect and cruelty. The factory, the mine, the sea, the field, the street, the circus, and the home have each and all been invaded by the same terror, and have alike learned the healing power of a national will instructed and refined by the compassion of kindly feeling. It is a glory of this reign that during its continuance a work so eminent in its humanity should have been so far completed. None should feel more deeply than our Gracious Sovereign and the not forgotten Prince her Consort in all good deeds, were he present with us, the joy of having added so much happiness to human life. In spite of considerable difficulty arising from social or economic opposition legislation in regard to this matter has proved an efficient corrective, even when applied in cases which required the direct invasion of the home. We need hardly remind our readers that it is in cases of this

latter sort that the National Society for the Prevention of Cruelty to Children has been most active. Its increasing popularity may be taken as indicative of the manner and the spirit in which its difficult functions have been discharged. We would also note the fact that every other project of a like nature has been either aided in part or entirely carried out by the State Executive, while this is maintained solely by the provident liberality of voluntary contributors. It is only right, therefore, that the coming celebration should bring to the society, as it is hoped that it will, a fresh mandate and vote of confidence in the form of a marked increase in that liberality.

THE PURITY OF LAKE WINDERMERE.

IT is satisfactory to find that the statement made some weeks ago by a member of the Lancashire County Council that Lake Windermere was becoming a vast cesspool is shown by Dr. A. Hamilton, in a letter to the *Times* of the 29th ult., to be without foundation. Typhoid fever and diphtheria are practically, and have been for some time, unknown in the district, a result which may safely be attributed to the excellent attention which the local authorities give to sanitary requirements. Dr. Hamilton proceeds to show from a series of analyses made during the last twenty years that the quality of the water of the lake has not deteriorated. We note, however, that the analysis made in 1884 was not quite so satisfactory as that made in 1875, but the county analyst, in summing up his report on the results of analysis of samples of water taken from the lake in November last, says: "The water is now purer than in 1894 and in 1884 and almost as pure as in 1875." Of course the lake is liable to some pollution since there are three urban districts situated in its immediate neighbourhood, but it is evident that the authorities of these districts spare no pains to keep the lake clean, from the fact that they have recently spent £18,000 on purification works. The authorities are to be congratulated on taking these desirable measures to maintain the historic purity of the waters and Dr. Hamilton for having established a case against the allegation that more sewage is now being sent to the lake than hitherto or that the waters of the lake are less pure than formerly.

THE INDIAN FAMINE.

THE latest telegraphic intelligence from India gives a somewhat brighter prospect. The winter rains, although light at present, are becoming more general, and the extent as well as the severity of the famine will, it is hoped, be less grave than was at first anticipated. Bombay and Madras Presidencies may be considered safe; and the prospects for the North-West Provinces, Oudh, the Berars, and part of Bengal have improved, while there is still much anxiety as regards the Punjab. There are large tracts, however, where famine is being felt and where the outlook is a serious one. The food prices in Bengal, the Central Provinces, some parts of the North-West, and the Punjab are very high, and the prospects in Upper Burma are bad. Relief works have been opened at a large number of places, and vigorous efforts are, of course, being made to curtail or mitigate the extent and severity of the threatened disaster. The Anglo-Indian papers are naturally full of descriptions of the famine, of the distress and sufferings of the people, and of the increased sickness and mortality that are being caused by it, which are sad enough in all conscience to read, but far worse to witness, as those of our countrymen who have served in India under such circumstances know full well. There is no lack of energy in the strenuous efforts that are being made for the relief of the sufferers and in the organisation that has been devised for the distribution of food supplies to the native populations of the affected areas. The Indian Government and the governing classes of that country have to cope with enormous difficulties at the present time, but they have had previous experience to guide them and happily they always rise to the occasion.

THE committee of St. Martin's Town-hall have granted the free use of the large hall to the Charing-cross Hospital for Mr. Bancroft's reading of Charles Dickens's "Christmas Carol," on Friday, Jan. 22nd, in aid of that institution. Tickets can be obtained only at the hall or of the secretary at the hospital.

WE understand that a promise of £500 has been made to the University College Hospital conditional upon nine other persons promising the same amount, or £100 each per annum for five years.

THE LANCET
Special Sanitary Commission
ON THE
USE OF ANTISEPTICS IN FOOD.

THE increasing use of antiseptics as food preservatives demands attention. At present there exists no law providing for the suppression or control of the practice, unless it can be proved that the substance in question in the amount present is injurious to health, in which case it comes within the meaning of the present Food and Drugs Act. Otherwise it is futile to institute legal proceedings. The addition of a preservative to foods such as milk and butter, can hardly be regarded as fraud in the same sense as when their bulk is increased by the addition of water in the one case and foreign fat in the other, although on the other hand an antiseptic may be employed to preserve articles in incipient decomposition for some time, giving them the appearance of freshness and thus directly deceiving the purchaser in regard to their actual condition. It would, however, be obviously difficult to establish a clear case of this kind in court. The injuriousness of preservatives in food should afford a more satisfactory basis to proceed upon, but in regard to this, the most important aspect of the subject, we are confronted with the very serious difficulty of a strong conflict of opinion.

It was not to be expected that the Select Committee on Food Products Adulteration, which finished its labours and drew up a report in July last year, would offer any pronunciation upon these points, since not a single member of this committee could be properly described as a scientific authority, but on the other hand the committee consisted largely of traders and politicians. We have commented upon this fact before, which is one to be deplored. In connexion with a very important section of the subject, therefore, the committee were content to refer such matters to a court of reference of experts the creation of which they were led to recommend. They did not, however, leave the subject entirely alone, for in the report they remarked that although the adulteration of food with substances injurious to health had diminished greatly during recent years, and that whereas (in the old days of THE LANCET Commission) people were poisoned, now they are cheated; but at the same time the evidence taken in the proceedings showed that aniline dyes were employed very largely in colouring food-stuffs and that antiseptics were added to almost all perishable foods. Some of these dyes and preservatives, the committee went on to state, are said to be poisonous and their use would therefore appear to be prohibited by Section 3 of the Act of 1875. Again, "your committee understand that it would be difficult to prove that some agents, colouring, and antiseptics are injurious to health, but the opinion has been expressed that some limits to their use should be imposed. Your committee are informed that in France the sale of any article to which antiseptics have been added is absolutely prohibited, and a similar course appears to have been taken in Germany, Italy, Spain, Brazil, and the Argentine Republic. Your committee

think the matter is one which deserves further investigation by recognised scientific authorities with the view to the expression of an opinion that would be regarded as authoritative." In another section of the report relating to the proposed functions of the new court of reference there occurs the sentence that "among the matters referred to (for the consideration of this court) may be mentioned such questions as the wholesomeness of ingredients used in the preparation of food, and the legitimacy of the use of colouring agents and preservatives."

Finally, in regard to the attempts which have been made to bring legislation to bear upon those who have employed antiseptics in articles of food, it is interesting to notice that the Local Government Board said, when appealed to upon this question, that "the question is one which the board have no authority to decide" and referred to note "d" appended to the form of certificate provided in the Act, according to which the analyst may say whether, in his opinion, the mixture was for the purpose of preserving the article and whether it was excessive in quantity. Allusion was further made to the report of the Local Government Board 1890–91, in which it was stated that "there is no doubt that boric acid if taken in large quantities would be injurious to health, but we have not sufficient information to show whether such minute amounts as are generally added as preservatives could be regarded as having that effect, and more exact information is wanted before it can be decided whether a process which *primâ facie* may be regarded as intended to prevent the loss of valuable foods must be held to be prohibited by law."

It is obvious from all this that the English law as it stands at present does not prohibit the use of preservatives so long as they are not shown to be injurious to health. This being so, it is futile to institute proceedings against the vendors of articles of food so treated without some evidence of this kind. Much public time and money has, however, been wasted over this matter in proceedings which have been instituted chiefly on the ground that the substance employed has been injurious to health. Even in the majority of these cases, if not in all, this argument has generally failed to convince the magistrate in view of the sharp conflict of views presented before him upon this subject in the evidence of expert witnesses. It may be here remarked that unless he is a duly qualified medical man the public analyst cannot be regarded as competent to give an opinion as to whether the preservative in question is injurious to health or not. His duty, we take it, has ceased under the present administration when he has stated in his certificate the fact of the article being preserved and if possible the quantity of the preservative, but of course if the use of certain preservatives should come to be entirely prohibited by law then he could pronounce definitely and decidedly against that food being fit for consumption which has proved to contain a preservative scheduled by the law as objectionable. It is on the question of injury to health upon which it is alone possible, it seems to us, to demand the aid of legislation, and no approach in this direction can be made until very definite evidence is forthcoming of actual injury to health having been caused by the consumption of articles of food preserved with those antiseptics which are now so commonly met with. At present there is very little evidence of experience available that any serious injury has been caused to health by the use of antiseptics in food, but it is possible that in certain obscure cases of illness the chances of injury to health by this means may have been overlooked Cases, it is true, have been reported from time to time, but not one has evinced any grave importance, while in some instances the arguments in favour of a preservative agent having done the mischief have not been as conclusive as might be desired. There was apparently a serious case reported comparatively recently by the medical officer of health to the East Kent Joint Committee in which milk that had been twice treated with borax, or its basis, boric acid, would seem to have led to a serious and sudden outbreak of illness. On considering the facts of the case, however, it is by no means clear that the injury was caused by the preservative in question. The symptoms pointed to ptomaine poisoning rather than to the effects of borax. This fact, however, may even afford an indirect argument against the use of preservatives, since possibly the unwholesomeness of the food may be covered by means of a preservative. In the notes of this case it is remarked by the writer, Dr. M. K. Robinson of Dover, that the results indicate the necessity for precautions being taken when prescribing this drug for medicinal purposes, and also in respect to its use as a food preservative. On the contrary, it is well known that considerable amounts of borax are frequently prescribed and are found to be borne with impunity.

The extreme importance of this subject has appealed to us for a long time, especially with a view to ascertaining whether legislation on this subject was in the first place called for, and in the second whether it could be made practicable. The aid of legislation would, of course, be called in either to restrict the practice altogether, or else, recognising its necessity, to place it under some control. In any case it is very undesirable that the legislative use of drugs in food for preserving purposes should be left without admonition in the hands of those who are quite ignorant of the nature of these drugs. The vendors' chief object in employing antiseptics is for the purposes of preserving for his own gain, and it is conceivable that he may be tempted to use a far greater amount than is necessary, so as to be quite certain of securing the food against a change which would render it unsaleable.

The question to be decided, therefore, is as to how far the use of preservatives can be held to be objectionable on hygienic grounds, and this, as the Food Products Committee puts it, is a matter "which deserves further investigation by recognised scientific authorities, with a view to the expression of an opinion that would be regarded as authoritative." It is obvious that this expression of opinion must rest entirely on the evidence and experience of medical men of recognised authority. The main purpose of the present article is to put before our readers representative views of members of the profession in regard to this important subject. The opinions expressed in the letters printed below were kindly furnished to us in response to the following letter.

THE LANCET Offices, Strand, W.C.

DEAR SIR,—We venture to bring under your notice the following facts regarding a very important subject and shall be greatly obliged for any information or advice which you can give us.

During the last few years attempts which have very generally proved abortive have been made at great expense to the public authorities to obtain convictions under the Food and Drugs Act in connexion with the use of certain antiseptics in the preserving of foods, beverages, &c. These cases have generally broken down because it has been held that articles of food so treated are not injurious to health in view of the small quantity of the preservative employed. A very definite pronouncement is wanted on this point and would be particularly opportune just now since the use of preservatives in food and various preparations (very often intended for the use of invalids and infants) is, there is reason to believe, largely on the increase. Not long ago a case was heard in which a British wine was proved to contain two or three grains of salicylic acid per pint. The prosecution failed because there was no evidence forthcoming as to the injuriousness of that small quantity. Milk and butter constantly contain boric acid and no conviction has ever been obtained on the score that the preservative used had any prejudicial effect upon health.

Is the presence of small quantities of salicylic, boric, benzoic acids or "formalin" in food in sufficient quantities to preserve it injurious to health? Should the use of antiseptics for this purpose be forbidden by law altogether, or should legislation be brought to bear on the restriction of the amount, or should the law insist that when preservatives are used the fact should be stated on the label?

We understand that public analysts are most anxious to have definite medical opinion on these points and we desire to help them to obtain such an opinion. We shall be deeply indebted to you if you will be so kind as to give us the benefit of your knowledge on the subject.

We are, Dear Sir, yours faithfully,

THE EDITORS OF THE LANCET.

Sir HENRY THOMPSON wrote:—"I have long held the opinion that the practice of adding antiseptic agents to articles of food which are daily and habitually consumed by individuals of all ages, including even infants in arms, is a most undesirable practice. I cannot produce evidence to prove that any one of these agents has given rise to deleterious action on the persons taking them. So great a number of concomitant circumstances

exist in connexion with the diet and management of people at large that the attempt to isolate the precise influence of the antiseptic drug must almost certainly be impossible. Some five or six years ago I was especially consulted by the municipal authorities of Kensington relative to this subject and strongly advised their limiting the employment of antiseptics on the part of dairymen and others, who, it appears, were using them freely, and I laid special stress on the undesirability of feeding very young children on milk thus 'preserved.' But on general principles I entertain a very strong objection to the *dietetic* use of any drugs; and thus I object greatly to the large general use of mineral waters containing them, as they all necessarily do, to a larger or less extent. I am not speaking of their medicinal use or of aperient waters, but of *drinking* waters containing often considerable quantities of mineral salts, such as carbonate of lime, soda, and magnesia. I infinitely prefer for the general consumer the use of distilled water aerated. It is, in fact, the most perfect drink for habitual use, especially amongst dense populations, where local wells or other sources are liable to become contaminated. Where the use of alkaline carbonates is necessary or desirable it is easy to take a known quantity, and at a suitable season of the day, which is certainly not generally at the time of taking food, when such mineral waters are mostly consumed. Certainly I am of opinion that in every case of articles offered for public sale containing an antiseptic agent the name and quantity of the material employed, and thus added, should be stated by label when possible; or at all events should be expressed on a paper, setting forth also the maker's or vendor's name."

Dr. PAVY wrote:—"Pray excuse this tardy reply to your letter regarding antiseptics and food, but I have not been able to give thought to the matter before. Because no tangible evidence is forthcoming of injury to health arising from the employment of antiseptics in small quantities for the preservation of articles of food I do not consider that our knowledge can be regarded as sufficiently extended and complete upon the point to permit its being absolutely taken for granted that no injury is producible. By the use of antiseptics it is the vendor and not the consumer that is benefited. An article that may have been kept for some time is made to present the appearance of one in the fresh state. To countenance this without the distinction being made known would be clearly unjust to the purveyor of the fresh article and calculated to lead to a relaxation of general effort to supply in the fresh state. Encouragement will also be afforded to insufficient attention being given in the fabrication of an article to secure self-maintaining goodness. Reference, for instance, is made in your letter to the addition of salicylic acid to British wine. A good and properly made wine does not require such addition, and by its agency inferiority may be covered and an unfair semblance of quality which does not exist be given. The same remark applies to beer, and an article in the preparation of which care is bestowed so as to give it self-preserving power is placed on a level with one that would become unsound on keeping if it were not for the antiseptic used. Justice, I consider, all round demands that antiseptics should not be allowed to be used without the fact of their employment being made evident so that the purchaser may know the nature of what is supplied to him. With respect to the question of restricting by legislation the amounts of antiseptics I consider it would be unwise for the legislature to incur such a responsibility. If it defined the amount that might be used it would be establishing, as it were, by legislation that no harm can accrue from the employment of such an amount. The onus, I am of opinion, should be thrown upon the vendor. He should not only reveal the fact of the presence of an antiseptic but at the same time should be required to specify its nature and amount. In other words, the onus should be made to rest upon the vendor with respect to the addition both as regards nature and amount being injurious or not to health. At the same time he should be made liable to prosecution for any deviation given regarding the antiseptic introduced. With the public interest thus safeguarded I think advantage might be taken of the power of antiseptics in preserving articles of food."

Dr. F. J. ALLEN, Professor of Physiology in Mason College, Birmingham, wrote:—"The substances used as antiseptics in food may be classed under two headings:—(1) those that are foreign to the animal organism, and (2) those that are unusual, but not foreign, since they are occasional constituents of normal food. Among the latter may be named benzoic and salicylic acids, which we take in minute quantities in vegetable foods, and which a healthy body can dispose of without disturbance of its functions. On the other hand, boric acid and its compounds are quite foreign to the animal body and their presence must necessitate a departure from the normal chemistry of life. The departure may be expected to consist partly in the formation of inert compounds of boric acid with calcium and magnesium (perhaps also iron), and the consequent removal of these indispensable metals from the economy. Whatever antiseptic may be used, it should be remembered that in order to obtain its due effect there must be enough present to exert a decided influence on photoplasmic activity. This effect can hardly be expected to be beneficial to the tissues of the alimentary canal. Even the disinfection of the contents of the canal is a doubtful blessing in most cases, because the beneficial organisms are thereby destroyed. However harmless an occasional dose of boric acid (or one of its compounds) may be, it is evident that the case may be different when nearly every article of diet contains it. If we take boric compounds with our bacon, sausages, fish, butcher's meat, preserved meat, milk, cream, butter, preserved fruits, jams, beer, cider, and wine, the result may be daily accumulation quite sufficient to produce a considerable constitutional disturbance and a gradual lowering of the standard of health. I am of opinion that if any article intended for food contains any added antiseptic the fact and the nature of the antiseptic should be required by law to be distinctly announced at the time of sale. The name antiseptic should not, of course, include common salt, nitre, spices, or wood-smoke."

Dr. G. SIMS WOODHEAD wrote:—"It is a somewhat difficult matter to give a very definite opinion on the points raised in your letter. In the first place I hold that the onus of proof rests on those who use those preservative substances in the preparation and preservation of food stuffs. As a matter of fact, we know that the question of idiosyncracy or personal constitution enters very largely into the question as to whether the substances used—salicylic acid, boric acid, and the like—are dangerous; and what may be comparatively harmless in 99 cases out of 100 may be exceedingly harmful in the hundredth case. Then it must also be borne in mind that what may be comparatively harmless when given in a single dose, or for a very short period, may have very serious effects if continued over a lengthened period, and the physiological effects of multiple doses, especially if the substance have any 'cumulative' action, may be exceedingly harmful. Then, again, we do not know as yet what effects certain of these drugs—formalin, for example, which acts very directly on albuminoid substances—may have upon food stuffs, especially as regards their actual digestibility, and until these points are settled it should certainly be illegal to add them. One would have thought that the taste given to foods by the addition of certain of these substances would be sufficient to exclude their use, but unfortunately this is not the case. These substances, whatever they are, are adulterants, and the milk or other foods to which they are added are to the extent of their addition adulterated. If it can be proved that such substances can be used safely then let permission be specially granted, but it is certainly inadvisable to allow anyone to use substances to preserve his wares simply because he thinks they are innocuous. The last point to be considered is that allowing the use of such preservatives is a direct incentive to the distribution of 'doctored' articles of food. Taking milk as an example, it is possible, as we know, by the use of chalk and other substances, to render sour milk saleable as fresh milk, and it is imaginable that by the addition of chalk and, say, formalin that such milk may remain saleable for some time after it has been 'doctored'; but no one would convince anyone who has studied the question of milk as a food for children or would contend that such milk is fit for food for any but the most robust digestion. The same theory should be carried into every question connected with food-supply. Let food be sold as pure, fresh food, free from chemicals of any kind, or if chemicals are used make it illegal to use them unless a full description of their nature and quantity be made known by means of a label or placard printed in large type."

The late Sir BENJAMIN WARD RICHARDSON wrote:—"I have read your letter carefully respecting the use of antiseptics in foods, and my opinion is that they, in foods, are not only necessary at this moment, but that when used

in proper form and quantity they are perfectly correct—that is to say, they cause no injury whatever to the consumers. There ought, therefore, to be a licence given, permitting, in every case where it is necessary to preserve, a certain fixed and not dangerous quantity of an antiseptic; and I think it ought to be stated on the label what that antiseptic may be and what is the quantity of it used."

Dr. T. LAUDER BRUNTON wrote:—"I think one must draw a sharp distinction between substances added to foods, condiments, or other articles intended for consumption for the purpose of simply increasing the profit of the vendors, and such substances as are added for the purpose of preserving perishable articles from the changes which would otherwise take place in them. As an example of substances added for the mere purpose of increasing the sale of an article, I may instance salts of copper added to tinned peas in order to give them a greener and fresher colour. The question of copper as an agent for this purpose has been a subject of much discussion, some holding that the copper is not injurious and others that it is; but whether it be so or not, I think that with such conflicting evidence the purchaser ought to have a chance of taking such risk as there might be, or avoiding it at his discretion, by having a clear statement upon every tin of peas that they contain copper if copper has been added, and that peas to which copper has been added, and which are not said to contain copper, ought to be regarded as adulterated and the vendors should be liable to a fine.

"The same rule ought, I think, to apply to all substances about which there may be the least doubt and the use of which is not actually prohibited by law, such as the use of alum in baking-powder, &c. In regard to substances which are simply added for the purpose of preventing such changes in perishable articles as would naturally occur without their addition, I think one must remember that poisons are actually formed from foods by their spontaneous decomposition, and that foods which might be perfectly good and harmless at the time they were sold might be allowed by the purchaser to remain lying in a warm place for such a time that spontaneous alterations might occur in them, and illness, or even death, might result from their consumption. This, of course, we know to be the case with meat, but even with butter we know such changes may occur as will render it rancid, and the fatty acids which are then present may act as violent irritants and produce severe indigestion. Similar changes may occur in other articles of food, and the question really comes to be whether the acids, salicylic, boric, or benzoic, which are added to prevent decomposition are likely to be more injurious to health than the natural products of decomposition which would be formed were the preservative not added. My own belief is that the preservative acids are likely to be considerably less injurious to health than the natural products of decomposition, but this is a point upon which considerable divergence of opinion might occur, and I think that here also the purchaser should be allowed the chance of judging for himself, and that where any preservative is added the fact of its addition and the amount added ought to be stated by the vendor. This would enable the purchaser either to avoid the article altogether, if he thought that it was likely to harm him, or to avoid any risk such as might occur from his taking such a quantity of the article as would contain an injurious amount of the preservative. For example, in the case of British wines, which contain two or three grains of salicylic acid per pint, this quantity could not do the person who consumed it any harm; but if he were to get through a dozen pints in the course of a hot summer's day the quantity of salicylic acid might possibly be then enough to harm him. In answer to your questions, then, I should say that the use of antiseptics should not be forbidden by law. Secondly, it is doubtful whether legislation should be brought to bear upon the restriction of the amount, because this will probably be settled by the quantity actually necessary to prevent decomposition. The makers of an article will in all probability use the minimum amount of antiseptic sufficient for their purpose, and legislation in regard to the amount might be simply meddlesome and injurious. Thirdly, it ought to be most stringently insisted upon by law that whenever preservatives are used the fact should be stated on the label as well as the amount used."

Sir WILLIAM ROBERTS wrote:—"I take it that there is really no reliable information available on the subjects embraced in your circular, and I doubt very much whether the opinions of medical practitioners on the points in question are of any value and they might be very misleading. What is wanted is an inquiry, and it would be a very long and difficult one."

Dr. W. D. HALLIBURTON wrote:—"I regard your letter as one on a subject of great importance, though I regret I am not able to give you much information from my own experience on this matter. On general *a priori* grounds it can hardly be doubted that the continued use of even small quantities of antiseptics is injurious, though it is difficult to put one's finger on any definite symptoms or recall any case in which it would be positively stated that the ill-health is due with certainty to the use of foods uncontaminated in the way you describe. On the other hand, I and all of us are continually taking such food (especially milk treated with boric acid) without any appreciably bad results. Professor Allen, Mason College (Physiological Department), Birmingham, was speaking to me about boric acid in milk the other day and said he was acquainted with cases of ill health in children due to its use. He told me the antiseptic prevented the proper action of re-union, which appears to be essential in the digestion of milk. I fancy it must want rather a large amount of boric acid, however, to prevent rennet action, as in the west country essence of rennet is generally kept sweet with this substance."

Dr. J. B. BRADBURY (Cambridge) wrote:—"No case has come under my notice in which I thought small quantities of antiseptics used in the preservation of foods, beverages, &c., have been prejudicial to health, and I am disposed to think that the presence of small quantities of salicylic, boric, or benzoic acids, in sufficient quantities to preserve it is not injurious to health. In my opinion it is not necessary to forbid by law the use of antiseptics altogether, but the amount should either be restricted or the fact of preservatives having been used should be stated on the label."

Dr. WHITELEGGE wrote:—"I am scarcely prepared to speak positively upon this matter. I have no doubt that large proportions of such antiseptics are harmful, but I do not know enough of the facts to affirm that there is no antiseptic which could be employed in a proportion so small as to be harmless.

"It seems clear to me that the law ought to insist upon a plain statement on the label if any 'preservative' or antiseptic, or, indeed, foreign material of any kind, be added."

As will be seen from these communications there is considerable diversity of opinion as to whether antiseptics in the quantities used for preserving food are injurious to health, and also whether legislation could satisfactorily deal with the subject, although on the whole the conclusion appears to be not altogether unfavourable to the use of preservatives with certain restrictions. The majority agree in one thing, and that is that should the practice be tolerated it should be placed under some control, so that, for instance, where the addition of antiseptics is practised it should be notified to the purchaser. Very few of our correspondents, it is important to note, are able to quote cases within their experience of injury to health having been caused by preservatives in food.

Although, to sum up, it would be difficult for the legislature to lay down hard and fast lines as to the quantity of antiseptic permissible, yet there seems no reason why the purchaser should not be entitled to demand an article free from certain preservative which could be scheduled. We certainly think that if the practice is to be permitted at all it should be subjected to control in regard to the amount and kind of preservative to be used, but it is difficult to see how legislation regulating the precise quantity of preservative could be made practicable. If legislation is to step in at all it must be either to allow or not to allow the use of preservatives, or certain of them, in food, and in the event of the former course being decided upon it should be insisted that the vendor should notify by label or in some other way the fact of a food being so preserved. At the same time, it is desirable that the public should be able to demand an article free from preservatives just as now under pain of penalty they can demand pure coffee unmixed with chicory. Similarly when a purchaser asks for fresh beef he does not expect to get beef preserved with salt, or pickled pork when he asks for fresh pork, tinned fruit for fresh fruit, and so on. There are certain preservatives in common daily use which nobody can suppose for a moment to be injurious; such are, for instance, salt, sugar, acetic acid, wood-smoke, &c.; but these, it is

argued, with of course the exception of the last-named, are not foreign to the animal organism. (The "curing" property of wood-smoke, it should be remarked, is dependent upon the presence of creasote bodies). It is probably, after all, merely a question of degree of preserving power; boracic acid, salicylic acid, and formalin are infinitely more powerful antiseptics than salt or sugar, and consequently to effect a certain preserving property may be used in infinitely smaller quantities.

It seems to us that in some cases preservatives may have their legitimate use, as unquestionably there would be much good and valuable food lost and wasted, especially in the hot summer months, if there were no easy and convenient means of preserving it against change. Unfortunately, where there is a legitimate use for a thing or method abuse is bound to creep in. It is the possibility of this abuse against which legislation should be directed.

MEDICAL ADVERTISEMENTS TAKEN FROM OLD NORWICH NEWSPAPERS.

BY CHARLES WILLIAMS, F.R.C.S. EDIN.

THE newspapers of the latter portion of the seventeenth century contain many extraordinary advertisements respecting the healing art. The following curious examples are taken from Norwich newspapers of that period. Not only were they inserted by quacks and barbers, but by surgeons and apothecaries who did not consider it derogatory to advertise the power of their drugs and the marvellous skill they possessed in being able to cure, without question, every possible complaint that man is subject to. Women did not despise the same means of making known their medical and surgical capacity. So far back as 1390 they appear to have dabbled with medicine; one of the ordinances issued by the barbers of London authorises the masters to make scrutiny, not only of men, but of women undertaking cures or practising the art of surgery. On the other hand we see in 1568 the Bishop of Norwich licensing Cecily Baldrye of Great Yarmouth to practise the art of chirurgery, and the widow of Nicholas Colman was licensed in 1596 by the Privy Council "to minister her best skill and cunning to women, children, &c.," and this practice was also recognised by the Mayor of Norwich, who paid Frances Bush 5*s.* towards the cure of Goodwife Woolsey (1673), and in the register of St. Benedict is an entry under date 1666, "Paid to Mrs. Scarfe for setting of Mary Usher her leg, 10*s.*" And now in the nineteenth century we find history repeating itself, and women again intermeddling in matters surgical.

Mrs. Taylor's advertisement.—"This is to give notice that the Widow of the late Dr. Taylor, deceased, still continues her Practice of Physick, and has by the Blessing of God lately cured several of the Rheumatism, Dropsie, Scurvey, and several other diseases incident to human bodies. She has also an infallible Remedy for the Stone and Gravel which gives immediate Relief to the Patient in less than an hour after taken. She likewise bleeds and gives judgment on Urin."—*Cosgrove's Gazette*, 1710.

Mrs. Dimes's advertisement.—"The Original Stone and Gravel Pill being a medicine so well known and approved of by all people who have try'd it, to be the only Remedy to cure the Dropsie, Wind, Collick, Scurvey, and Rheumatism, which by God's blessing it never faileth to perform, if curable, in both sexes and of all ages tho' never so far gone (without let of time), is made and sold only by me, Mary Dimes, Wid., at my house near St. Simon's Church, Norwich."—*Ibid.*, 1710.

"John Bennett, near the 3 Cranes in the Cathedral Close in Norwich, Chirurgeon and Student in Physick, cures after a new, speedy, and safe method the lues venerea, or French disease, of the longest date with the worst of symptoms, without let to business, as is well known to some hundreds, after given over by others, and has a large Testimony allowed to show the Incredulous. A clap he cures in a few days and desires nothing for his pains; cures the Asthma, Catarrh, Rheumatism, Green Sickness, Dropsies to admiration, Feavers, any sort of Agues in a few hours, inveterate pains, Rickets in children even to a wonder, cures Tumors, Wounds, Old Ulcers, Cancerated Breasts, Dislocations, Fractures, Ruptures in any part of the Bodies of Women, Children or Men, if so born, or of 30 or 40 years' continuance (and where all Remedies hereunto has failed), as more than 500 can testifie since 8 years past, and 50 more within 3 months. He cures many other diseases gratis and directs the poor in the cure of any disease gratis. His being gone to Sea again in the Navy is as false as his being dead last year when in Spain."—*Cosgrove's Gazette*, June 10th, 1710.

Sir William Read, Kt.—"Notice is hereby given that Sir William Read, Kt., Her Majesty's Principal Oculist and Operator of the Eyes, and in that Quality Sworn Servant in Ordinary, as he was to King William. His occasions call him to Norwich, where he has several patients to attend, and in the adjacent Parts, So he will be to be advised withal for some time at Mr. George Bussey's at The Angel, in Norwich Market Place, from the 25th of October, where all people shall be served with honourable and fair Practice. As he has made demonstrations among you several times after 35 years' Experience, which is beyond Pretenders, especially to cure of the eyes, who know nothing of the matter more that to trick people out of their money, for these bold pretenders are as dark of their understanding as they leave most of their patients of their sights after they have tried practice upon them to the ruin of most they undertake. Note.—Sir William cures Hare-lips and Wry Necks, tho' never so deformed, and prevents Cancers and Catarrs in the beginning, and takes off all sorts of Wenns and Tumors."—*Cosgrove's Gazette*, October. 1710.

The learned Knight was "hindered in his intention of coming on account of having to attend to some persons of quality in distempers relating to the eyes." However, in a short time there appears the following announcement:—

"This is to satisfie the Publick that Sir William Read, Kt., Her Majesty's Principal Oculist and Operator for the eyes, and in that quality Sworn Servant in Ordinary, does design (with God's assistance) to be at Mr. Bussey's, at the Angel in the city of Norwich from the 1st of January for some months, where the Poor shall have his advice gratis and others kindly used; and all persons blind of Cataracts shall pay for their cures after the success of his operations. He thinks it necessary to give this publication, that the City and County may not be imposed upon by Pretenders, who are as much strangers to the practical part of the Eyes as they are to the persons they so boldly attempt their cures upon."—*Cosgrove's Gazette*, Dec., 1710.

John Pell, Lythotomist.—"Lythotomy being supposed here as distinct from Surgery, and I being thought one of those Surgeons that do not cut for the stone, do find myself obliged from that consideration as well as from the Persuasion of my Friends to make this Public declaration for the benefit of miserable Mankind, that all who are afflicted with the stone may by my cutting them (and by the Divine Blessing) be cured of the same, I having had the good fortune to be instructed in that dangerous and difficult operation of Cutting for the Stone by the Great Mr. Salter of London, the most Ingenious and successful lythotomist now in England. Note.—All that are truly poor may have advice and be cut gratis by me, John Pell."—*Cosgrove's Gazette*, July, 1710.

Dean Prideaux, who suffered from stone, evidently had no great opinion of John Pell, for he "sent for the famous lithotomist, Mr. Salter, from London, to perform the operation, which he did with great dexterity, drawing out the stone, which was the size and shape of a sheep's kidney, in less than three minutes' time." The dean recovered and lived fourteen years, but nearly lost his life in the cure.

Mrs. Hacon's advertisement.—"All persons indebted to Hubert Hacon, Surgeon, lately deceased, are hereby desired to pay in all their respective debts forthwith to the Widow, his sole Executrix, or they will be sued for the same. She lives near the Cardinal's Cap in St. Swithin's and cuts hair for either Gentlemen or Ladies to the greatest Nicety. She lets blood very finely and to the poor for threepence. She has also an excellent Sear-cloth for pains and strains which she sells for ninepence a quarter; and for the Rheumatisme she has the same infallible remedies which the Doctor himself always made use of."—*Cosgrove's Gazette*, 1716.

Mr. John Harmer's denunciation.—"Whereas one Mr. Charles Haynes, a Stranger, has been in this City a considerable time as a Man Midwife, but having little practice here in that way has that charitable disposition of mind (towards himself) as to offer to the Court of Guardians, as advertised in last week's paper, to deliver the poor gratis. Now I, John Harmer, who have received Money of the Court of Guardians for the same work and am a Native of this City, and have performed several acts of Charity here in the Art of Surgery,

should be ashamed to be outdone by a Stranger in those acts; therefore, I give public Notice that I will attend and assist Gratis in this necessary work all such poor women as are not able to pay.—Witness my Hand, John Harmer, Surgeon, St. Clement's, Norwich.

"N.B.—As Mr. Haynes is a young man and a Batcheler I advise him to marry as a necessary qualification, for I believe it was never known (neither is it decent) for a Batcheler to perform such operations."—*Cosgrove's Gazette*, 1729.

Mr. John Harmer was a well known surgeon and lithotomist in this city. He was evidently much nettled with the conduct of the young man Haynes. On the other hand Harmer was, like most *medici*, very fond of seeing his name in print, as the following notices, taken from the *Norwich Gazette* of that period, amply prove:—

"On Sunday last was cut for the stone by Mr. John Harmer, Surgeon in this City, Peter Riggs, a lad about 17 years of age, and was extracted from him (to the great surprise of the Spectators) an iron shuttle spire 4 inches long. He had some time before a stoppage, endeavoured to relieve himself with a shuttle-spire, let it drop into the passage through which it conveyed itself into the bladder, and occasioned the same symptoms as a stone. He underwent the operation and at the same time concealed the cause thereof. He is in a fair way of recovery."—*Norwich Gazette*, Sept. 22nd, 1744.

"On Sunday last was cut for the stone by Mr. John Harmer, John Howse, gardener, from Porland, aged 49, from whom he extracted a stone of a prodigious magnitude, measuring 12 inches one way and 8 the other, and weighed upwards of 14 ounces and a half, and is said to be the largest ever extracted from any one person who recovered the operation, as this man is likely to do, he not having yet had one bad symptom. In my next I shall insert a further account of this operation, in which the Publick shall be informed whether the patient be living or dead. The same gentleman about three weeks since cut a kinsman of the above-named person and extracted a very large stone from him who is recovered."—June 7th, 1746.

"John Howse, the Gardener who, as mentioned in my last, had the large stone (which weighed upwards of 14½ ounces) extracted from him is in a fair way of recovery and judged to be out of danger. The above Mr. Harmer has cut for the stone upwards of 170 persons, and that with as much success as any man living, but never extracted one so large before."—June 14th, 1746.

This case still remains on record as the largest stone removed by lithotomy from which the person recovered. Howse lived five years afterwards. The stone is preserved in the museum of the Norfolk and Norwich Hospital.

"On Monday last Mr. John Harmer, Surgeon, extracted from the bladder of James Ruston, in St. Mary's parish, two stones, each of them about the size of a pullet's egg, and notwithstanding its being the different season of the year for performing this operation in, the man is in a fair way of recovery, as is the man who had the large stone of 14½ ounces extracted from him some weeks since by the same gentleman."—July 5th, 1746.

Daniel Nelson, Loddon.—Dr. Palmer, of Loddon, being lately deceased, who used the art of Midwifery, having served his apprenticeship some years since with the late famous Dr. Havers, of Stoke Holy Cross, by Norwich, well known by his skill in that practice. ..... I Daniel Nelson, Surgeon in Loddon aforesaid, having faithfully served as an apprentice with the said Dr. Havers, and having by pains and study as well as Anatomical courses made himself Master of the said Art so necessary for all Women Labouring under any difficulties in child bearing, he advertises this that he is ready at any time when wanted, at the most reasonable charges. N.B.—He undertakes to cure all Lunaticks if corable."—*Cosgrove's Magazine*, 1732.

This advertisement is exceedingly interesting because of the mention of the name of Dr. Havers, who was the Rev. Thomas Havers, but better known by the former title, to whom there is a monument on the outside of the south wall of Stoke Holy Cross Church, and on which he is described as being learned in theology, physics, surgery, and lithotomy, as well as "pauperibus et ægrotis semper amicus." The designs of various surgical instruments are carved in stone at the bottom of the inscription. He appears to have had a considerable reputation as a surgeon, and one is surprised that with his ability and love for the profession he did not leave Stoke and seek a larger scope for his talents in Norwich. In 1683, at the age of twenty-four years, he was presented by the Duke of Norfolk to the living of Framingham Earl, from which he retired in 1701 to devote his time and energies to the practice of medicine and surgery at Stoke Holy Cross, the village he never left, but ended his days in in 1719. He was in the habit of taking pupils and teaching them surgery and midwifery, as is exemplified in Daniel Nelson's advertisement. In his will, dated 1719, he left £20 to the poor of Stoke and his "instruments of chirurgery to his nephew, Robert Bransby of Hapton Hall, Norfolk." This Robert Bransby, whose aunt Havers had married, was a surgeon. He subsequently removed to Shottesham, and there died in 1748. His daughter Elizabeth became the wife of Benjamin Gooch, the most celebrated surgeon of his day, who in 1771 greatly assisted to establish the Norfolk and Norwich Hospital, his patron, William Fellowes of Shottesham Hall, distinguished by his friends as the "man of Shottesham" from his resemblance to Pope's "Man of Ross," being the actual founder of that institution. This gentleman some years previously had recognised the value and advantage of such places, and had erected at his own expense in Shottesham a cottage hospital for the benefit of the poor in that neighbourhood. With this Gooch was for many years connected as surgeon. It gave him the opportunity of acquiring an amount of surgical practice which subsequently enabled him to write three very interesting volumes of "Cases and Observations in Surgery." This is the first instance of the existence of a village hospital in England; the next was founded eighty-eight years later at Cranleigh in Surrey in 1859.

Benjamin Gooch's only daughter Sarah was engaged to Lord Chancellor Thurlow. Lord Campbell, in his "Lives of the Chancellors," informs us that "she was afraid of him and would not have him." Ultimately she was married to Dr. D'Urban, who had succeeded Gooch at Shottesham, and became the mother of General Sir William D'Urban. Sir Astley Cooper's father was the Rev. Dr. Samuel Cooper, rector of Shottesham. He married a daughter of James Bransby, second cousin to Mrs. Gooch. In this way the families of Bransby, Havers, Gooch, and Cooper became intimately connected. Dr. Cooper's eldest son was Bransby Cooper, M.P. for Gloucester.

THE PLAGUE IN BOMBAY.

THE latest intelligence regarding the plague epidemic in Bombay is very far from satisfactory. The number of cases is increasing and the disease is extending: it has advanced to the suburbs and also to Bandora. According to a telegram of the 28th ult., through Reuter's agency, the health of the Europeans, however, is very satisfactory, no deaths having been recorded among them from any cause during the past week. Up to the present time the plague statistics give 2004 cases and 1494 deaths, but it is believed that these numbers do not really include all the cases that have actually occurred. Since the outbreak of the disease in Bombay there has been an enormous exodus of the population, which still continues. The week's mortality up to Dec. 28th from all diseases was 1416, which is in excess of all previous records for Bombay. The estimated mortality, calculated at the ratio of the reduced population, reaches the very high figure of 109 per 1000. A later telegram from Bombay of the 29th ult. states that 177 cases of plague with 130 deaths have been registered in that city in the past two days. The local press, it is stated, animadvert strongly upon the apathy displayed by the special plague committees and the members of the corporation. They also condemn the revoking of the regulations regarding segregation under the pressure of the sanctity of caste, and warn the people of the possibility of a military *régime*. The experience of Hong-Kong, it is urged, is in store for Bombay unless things take an unexpected turn. Cases of plague have also been reported as having occurred at Poona and Karrachi.

The great difficulty in making a successful effort to stamp out epidemic diseases everywhere, but especially in the East, arises from the fact that all attempts of the kind are made too late to be effective; the earlier cases are not segregated and the disease spreads during a period of inaction; and, for the same reason, sanitary works and measures that should

have been taken in anticipation and with a view to the prevention of disease, cannot obviously be undertaken and executed with the necessary promptitude when the epidemic is already present. But there is no other way of dealing with disease-causes, and the sooner the authorities at Bombay learn the lesson the better. It is the old story of increasing dirt, overcrowding, and neglected sanitation until the day of retribution comes in the shape of an epidemic which soon obtains a firm foothold under such circumstances.

The Municipal Commissioners of Calcutta have no time to lose if they are to turn to any practical account the warning they have received from Bombay. The *Pioneer Mail*, in adverting to the trenchant remarks of the Lieutenant-Governor of Bengal regarding the disgraceful state of certain districts in Calcutta, gives the following description of the sanitary defects of the worst parts of that city, where happily up to the present time the Medical Board are able to state that no case of true bubonic plague has yet occurred:—

"London with its population of over four millions has about 36,000 people to the square mile. In the thirteen wards of Calcutta there are only four below this figure; the remainder have from 46,000 to 144,000 per square mile, three wards being actually over the 100,000. Colootolah is most densely populated, and the houses are literally crammed with people. One case is quoted where 250 persons were living in space that should accommodate only fifty. In a hut seven feet in length, breadth, and height, five men were found, and several instances are given where similar conditions obtained. In our barracks 600 cubic feet per man is the minimum space allowed. In these *bastis* the space runs from 157 to 49 cubic feet. This would be bad enough if everything were clean and sweet in and about the huts; but as the Medical Board put the case: 'Here we find an allowance per head going as low as practically one-thirtieth of that given in barracks, and no ventilation; with filth *ad lib.* both in the room and in its surroundings, to say nothing of the filthy persons of its occupants, the sewage round in the adjacent drains and the accumulated filth in the neighbouring latrines, and to this may be added the fact that the subsoil on which the huts are built is soaked through and through with sewage matters and littered with garbage and filth of all kinds.' The narrow gullies which give access to these huts are in keeping with the general character of the *bastis*, and we may well wonder that epidemic disease is not always present."

We entirely concur with the medical authorities and the *Pioneer Mail* in thinking that the speedy application of wholesale sanitary measures is required in Calcutta; that wide roads and open spaces should be substituted for these overcrowded areas; that filthy huts and habitations should be cleared away and foul tanks and wells closed, and in that way the people compelled to have recourse to the good and wholesome water now accessible and almost carried to their doors; and that the drainage, food-supply, and other measures for improving the public health should be carried out as rigorously and promptly as practicable in the interest of all concerned. All this means money no doubt, but there is a rich community in Calcutta and the local Government must compel them to spend it.

THE LANCET RELIEF FUND.

EIGHTH ANNUAL REPORT OF THE ALMONERS.

THE LANCET Relief Fund, which has for its Almoners the President of the Royal College of Physicians of London (Dr. SAMUEL WILKS, M.D., F.R.S.), the President of the Royal College of Surgeons of England (Sir WILLIAM MAC CORMAC), the President of the General Medical Council (Sir RICHARD QUAIN, Bart., M.D., F.R.S.), Mr. THOMAS WAKLEY, F.R.C.S., and Mr. THOMAS WAKLEY, jun., L.R.C.P. Lond., with Sir HENRY PITMAN, M.D., F.R.C.P., as Honorary Auditor, came into operation on the 1st of February, 1889.

In presenting the eighth annual report the Almoners think it well again to direct attention to the object for which the Fund was established.

The Fund is sustained solely by the Proprietors of THE LANCET, who provide every January the sum of at least £300, and is administered free of cost, with the object of affording immediate pecuniary assistance to registered medical practitioners, or to the widows or orphans of members of the profession in cases of distress and emergency, by the grant of money by way of loans free of interest, or gifts, as the circumstances of the various cases may require.

When the Fund was inaugurated considerable misapprehension existed as to the precise objects for which it had been established: and as a result the majority of the earlier applications, being cases of *chronic* distress, and not coming, therefore, under the designation of *emergency*, could not be entertained. Attention was called to this fact in THE LANCET of Feb. 16th, 1889, in the following words:—

"We are requested by the Almoners to state that, from the character of a number of the applications received, both personally and by letter, for relief, it is evident that in many cases the object for which this Fund has been established is not quite clearly understood; and if relief had been afforded in the cases of those who suffer from chronic distress the Fund would have been completely exhausted within the first few days of its existence. They would therefore be greatly obliged if those readers of THE LANCET who may be asked to endorse applications would carefully peruse the Application Form and explain the precise object of the Fund to those applicants whose cases do not seem to come within the scope of the purpose for which the Fund has been established, which is to afford prompt aid to registered medical practitioners, or to the widows or orphans of members of the profession, who, in consequence of the supervention of some unexpected emergency, which is not likely to recur, have pressing need of immediate and temporary pecuniary relief"—and who, it may once more be pointed out, are likely to be permanently benefited thereby.

The balance in hand at the end of 1895 amounted to the sum of £77 19*s.* 10*d.* On Jan. 2nd, 1896, the Proprietors of THE LANCET placed to the credit of the Fund the sum of £300. During the course of the year repayments of loans to the amount of £25 10*s.* have been made. The sum of £350 has been granted in relief either by way of loan or of gift, leaving a balance of £53 9*s.* 10*d.* as per bank pass-book.

There have been considered altogether during the twelve months ending Dec. 31st, 1896, 37 applications for relief (the number the previous year having been 56). In 29 cases assistance was awarded, either as a loan or as a gift, according to the request of the applicant, the amounts of the grants ranging this year from £5 to £25.

In some cases of extreme urgency the application has been considered by the Almoners, the grant sanctioned, and a cheque for the amount forwarded to the applicant on the same day the application was received.

The following are extracts from letters received from some of the recipients of the Fund:—

305.—"I thank the Almoners very sincerely for their kind gift. To Mr. Wakley please present my thanks for his kindness and generosity in providing the Fund."

307.—"I am deeply grateful to the Almoners of THE LANCET Fund for their very valuable gift—how valuable only those can know who have gone through the wretched worry that I have—nearly five months without a berth, my slender stock of savings long ago exhausted, incurring debts to friends and others. Had I not been a strong man and always abstemious I must have fallen into ill-health and even destitution. I acknowledge the wisdom of the Almoners in making to me a gift instead of a loan, the repayment of which might press heavily and be a source of anxiety, whereas now should I ever become in a position to repay it I trust that I may be allowed to do so, and in that way be the means of benefiting others through the agency of your charitable work."

308.—"Kindly express our heartfelt thanks to the Almoners for enabling us to discharge the balance of the account. I can hardly express adequately the extent of our grateful feelings in thus saving our home."

321.—"Allow me to express my grateful and most sincere thanks for your kind letter. The generous and extremely benevolent gift can never be forgotten amid the painful and cheerless hours I have to pass. I shall ever feel deeply indebted to the Almoners for their kind and considerate view of my unfortunate position."

326.—"I thank the Almoners for the cheque, which comes to me much needed. I think it most kind and considerate of them to be so prompt in sending it."

330.—"I am extremely grateful to the Almoners for the generous present I received this morning. I cannot adequately express my deep thankfulness for your most timely assistance. I pray that God's blessing may be with you and that your Fund may increase and continue to extend its help to those who, like myself, are in great need."

336.—"I have much pleasure in sending you first instalment of loan. The loan that the Almoners granted me has been of the greatest good to me. I again thank them for their great kindness."

344.—"I gratefully acknowledge with sincerest thanks the receipt of cheque. Your remittance reached me within twelve hours of the time my application was received. This promptitude has relieved me of immediate embarrassment."

(Signed)

RICHARD QUAIN.
SAMUEL WILKS.
WILLIAM MAC CORMAC.
THOMAS WAKLEY.
THOMAS WAKLEY, Jun.

Statement of Accounts for the Year ending Dec. 31st, 1896.

DR.	£	s.	d.	£	s.	d.
To Balance at Bank, Jan. 1st, 1896				77	19	10
,, Proprietors of THE LANCET				300	0	0
,, Repayment of Loans :—						
Case No. 276	£2	10	0			
,, 247	10	0	0			
,, 276	5	0	0			
,, 308	2	10	0			
,, ,, ...	2	10	0			
,, 336	1	10	0			
,, ,, ...	1	10	0			
				25	10	0
				£403	9	10
To Balance at Bank				£53	9	10

CR.	£	s.	d.	£	s.	d.
By Loans :—						
Case No. 308	20	0	0			
,, 309	25	0	0			
,, 322	20	0	0			
,, 336	15	0	0			
,, 339	25	0	0			
,, 341	20	0	0			
,, 344	20	0	0			
				145	0	0
By Gifts :—						
Case No. 305	10	0	0			
,, 306	10	0	0			
,, 307	15	0	0			
,, 310	10	0	0			
,, 311	10	0	0			
,, 313	5	0	0			
,, 314	10	0	0			
,, 316	10	0	0			
,, 317	5	0	0			
,, 318	10	0	0			
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,, 330	10	0	0			
,, 332	15	0	0			
,, 334	15	0	0			
,, 335	10	0	0			
,, 337	5	0	0			
,, 342	10	0	0			
,, 343	10	0	0			
				205	0	0
,, Balance at Bank, Dec. 31st, 1896				53	9	10
				£403	9	10

I find by the Bankers' Book that the actual balance on Jan. 1st, 1896, to the credit of the Fund was £77 19*s.* 10*d.*, to which the sum of £300 was added by the Proprietors of THE LANCET on Jan. 2nd, 1896.

The balance at the Bankers' at the present date is the sum of £53 9*s.* 10*d.* I have also checked the receipts for disbursements and find the above account strictly accurate.

December 24th, 1895. HENRY A. PITMAN, Hon. Auditor.

LOUIS PASTEUR.

THE last stage in the obsequies of Louis Pasteur was reached on Dec. 26th, 1896, when the mortal remains of the illustrious deceased were deposited in their final resting place. His death occurred on Sept. 28th, 1895, and at the funeral, which took place on Oct. 5th, the French nation honoured his memory with an impressive ceremonial and other tokens of respect displayed only when the last offices are being rendered to those who have held an exceptional position in their country's service. The President of the Republic was among the company assembled at the Cathedral of Notre Dame, the Governor of Paris was in command of the imposing military force which formed the escort, the officiating clergy included two archbishops, and the Minister of Public Instruction took a prominent part in the proceedings. The body was then deposited in the Cathedral, only, however, to remain there until a tomb or crypt suitable for its permanent reception should be constructed at the Pasteur Institute. This work having now been completed the removal of the remains was accomplished last week in presence of the family of the deceased, the staff of the Pasteur Institute, and a numerous assembly comprising men eminent in various departments of knowledge, representatives of the Government, members of learned societies, and visitors from several foreign countries. The English representatives were Sir Joseph Lister, President of the Royal Society, Sir Dyce Duckworth, Sir William Priestley, Professor Evans of Edinburgh University, and Professor Crookshank. Soon after eight o'clock in the morning mass was celebrated in the Cathedral, and on the conclusion of the service the body was conveyed in a hearse to the Pasteur Institute in the Rue Dutot, where it was received by M. Bertrand, the president, and M. Duclaux, the director. The crypt is reached by a flight of steps leading from the main entrance hall; it is ornamented with appropriate mosaic designs and has a cupola in which are emblematic figures representing Faith, Hope, Charity, and Science. Over the crypt is the inscription, "Heureux celui qui porte en lui un Dieu, un idéal de beauté, et qui lui obéit—idéal de l'art, idéal de la science, idéal de la patrie, idéal des vertus de l'Evangile." After the ceremony of consecration was completed and the coffin laid in the place prepared for it several speakers addressed the company. M. J. B. Pasteur, on behalf of the family of the deceased, formally committed the care of the tomb to the council of the Institute.

M. Rambaud, Minister of Education, enumerated some of the benefits which Pasteur's discoveries had conferred on humanity, and was followed by M. Baudin, President of the Municipality, and several others.

Sir JOSEPH LISTER said: "Je suis chargé de représenter la Société Royale de Londres, le Collège Royal des Chirurgiens d'Angleterre, et la Société Médico-Chirurgicale de Londres. Aussi j'ai fait déposer, de la part de l'Institut Britannique de la Médecine Préventive, fille de l'Institut Pasteur, une couronne ici. Il y a quatre ans, à l'occasion du jubilé de Monsieur Pasteur, j'ai eu le suprême honneur de lui présenter, au nom de la Médecine et de la Chirurgie du monde entier, l'hommage de leur reconnaissance. Aujourd'hui j'assiste à ses funérailles! Cette cérémonie est noble et imposante, digne de la mémoire de notre vénéré maître. Mais elle nous remplit d'une profonde tristesse, puisqu'elle nous rappelle que cette grande lumière de la science, si ardente et si claire, est éteinte; que ce caractère, si noble et si aimable, a disparu de notre monde."

Sir DYCE DUCKWORTH, who represented the Royal College of Physicians of London, and also, as past president, the Clinical Society of London, said: "Au nom du Collège Royal des Médecins de Londres, j'ai l'honneur de témoigner la vive sympathie avec laquelle les médecins d'Angleterre s'associent à cette touchante cérémonie. Je porte l'hommage de nos confrères à ce grand génie créateur, à ce noble caractère de Louis Pasteur. Pour nous il est un des prophètes de la science, il en est un des avant-coureurs les plus éclairés et les plus intrépides. Vénérons ensemble ce bienfaiteur de l'humanité! Vénérons ce Chrétien loyal et convaincu, dont la foi a résisté à toutes les influences matérialisantes de ses études! Que l'œuvre de Pasteur, dont les cendres reposeront désormais dans ce sol consacré par son travail, reste une des gloires impérissables de la France et du monde."

Sir W. PRIESTLEY said: "I have been appointed to represent here to-day the two Scottish Universities of Edinburgh and St. Andrews in token of respect for the memory of one who has done so much to advance the interests of science and who has conferred such signal benefits on mankind. The University of St Andrews is the most ancient in Scotland, and its authorities have in grateful recollection the kindness extended to some of its students in Paris by a committee of which M. Pasteur was chairman. The connexion of M. Pasteur with the University of Edinburgh is a more intimate one. At the celebration of the tercentenary of the University it conferred an honorary degree on M. Pasteur and received a reflected honour in enrolling so distinguished a name on its list of graduates. Those who were present on that occasion will not readily forget that magnificent ceremonial. France was represented, in addition to M. Pasteur, by Caro, Mézières, Guizot, Ferdinand de Lesseps, and my dear and lamented friend, Henri Gueneau de Mussy. I sat beside M. Pasteur, and the enthusiasm with which he was greeted knew no bounds. I had the privilege of receiving an honorary degree at the same time, and considered its value greatly enhanced by being in such company as the celebrated Pasteur and his *confrères*. Both the Universities which I represent desire to show their sincere appreciation of M. Pasteur during his lifetime and to do all honour to his memory now that he is no longer with us."

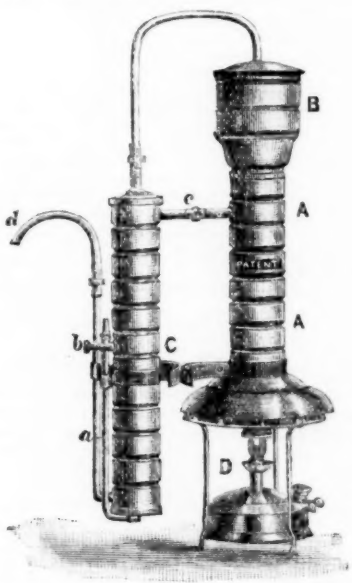
Professor CROOKSHANK spoke in the name of King's College, London.

It was observable that places of honour were assigned to the Englishmen. The public were admitted to the crypt during several hours on Sunday, an opportunity which was taken advantage of by an immense number of visitors.

THE LAWRENCE PROCESS OF SOFTENING AND STERILISING WATER.

So far as regards rendering a water absolutely safe to drink there is little doubt that heating it up to boiling point or to a slightly higher temperature and keeping it at that temperature for a time is the most trustworthy method. Filters are easily liable to accident, and defects in their construction may easily occur, while the conditions under which they can only be expected to work efficiently often fail to be secured through neglect, and that perhaps at a time when their efficient working is in special request, but boiling the water admits of no such possibilities. Satisfactory, however, as boiling the water may be from the point of view of killing pathogenic organisms, yet, as everyone knows, it deprives the water of certain of its most important qualities for drinking purposes. It becomes vapid, tasteless, and devoid of those qualities expressed by the terms "fresh," "bright," "crystal," "palatable," &c. In other words, boiling renders the water safe but not in a strict sense fit to drink. Then, again, the expense of boiling every drop of water we drink would be a somewhat formidable factor in the accounts of the household.

The boiling of water in a comparatively open vessel, as in an ordinary kettle, is obviously an extravagant proceeding; the loss by evaporation is enormous, objectionable salts that may be in solution are concentrated, and heat would be dissipated to no purpose. In the ordinary process of distilling water the heat that is expended in converting the water into steam is subsequently absorbed and lost in the water of the condenser, which is commonly run to waste. The desideratum, therefore, of a process of this kind, it seems to us, would be an apparatus in which the water could be distilled—i.e., converted into steam—and the steam condensed in the water supplying the boiler of the still, so that it would be raised to such a degree of temperature as to require but a little augmentation of heat to bring it completely to boiling point. In short, instead of losing the latent as well as the indicated temperature of the steam it should be utilised in such a way as to heat up fresh quantities of cold water preparatory to entering the boiler. In this manner the outgoing water would be cooled, softened, and of course sterilised, and the incoming water raised substantially near the boiling point, thus effecting a very important economy in the heat required. It is practically this principle which is adopted in the Lawrence apparatus, and the satisfactory application of which promises to make this method of the utmost importance and value on both economic and hygienic grounds. The accompanying illustration will make its construction and



the manner of its working clear. It represents one form of the apparatus for domestic use and consists of the following parts:—(A) The outer boiling-vessel containing an inner boiling cylinder (B) with enlarged top. (C) A heat-interchanger by means of which the heat is transmitted from the boiled water to the crude inflowing water. (D) The lamp or heater which serves to supply the few degrees of heat not interchanged by the apparatus (C).

In action the water flows in cold through the small supply-pipe *(a)*, the rate of flow being regulated by the cock *(b)*, and enters the heat-interchanger at the bottom. Rising upwards, internally, it arrives at the top of the interchanger (C) at about 180° F., and passing into the top chamber of the inner boiling-vessel (B) thence passes downwards through all the chambers or locators, about twenty in number, where it is met constantly by the ascending steam or vapour of ebullition. These chambers, in series, really constitute a sort of "scrubbing tower" in which the ascending steam is brought into very intimate contact with the water. In addition, the tower is packed with a column of discs in a vertical position, which in shape are not unlike the screw propeller of a ship. Their function is to bring about complete contact of the steam with the water, while the slight resistance which they offer to the upward passage of the steam is calculated to raise the temperature somewhat above boiling point.

The water having become successively deposited in these locators arrives at the lowest chamber, whence it takes an upward course between the inner and outer cylinders, flows back to the heat-interchanger, through the pipe (C) and, becoming cooled by the inflowing water, makes its escape at (*d*) in a cooled state. A certain amount of aeration is effected in this pipe by means of a small hole at the top of the bend, bubbles of air being sucked in by the action of the descending stream. The temperature at which it emerges depends upon the rate of flow; about 20° of difference is practically maintained between the inflowing and outflowing water where the quantities of each are equal. Thus, if the crude water enter at 50° F. the softened outflowing water will be 70° F. or thereabouts. When, however, a portion of the water is required as hot water and the remainder as cold these temperatures are modified. A domestic apparatus of twelve gallons per hour power, with additional interchanging power when worked at eighteen gallons rate of flow, delivering hot water at seven gallons and cooled water at eleven gallons, gives, as found by experiment, the hot water a temperature of 160° and the cold 8° only above that of the inflowing water, which, supposing it was originally at 50°, would give 58° for the softened water.

The prevention of incrustation is provided for by the inner boiling cylinder being removeable as well as the boiling and depositing chambers contained in it. The incrustation being soft and friable is quickly shaken off.

The softening effect of the apparatus upon hard water can be modified to suit individual requirements. Water such as that in the hard chalk districts and the London tap water may be reduced, as our experiment showed, to 6° or 7°. This applies to the London tap water with an initial hardness of 16° or of other water showing a hardness of 20°.

Applied to industrial purposes the following is the statement of the inventor of this apparatus in regard to cost. The few degrees of heat necessary to transform the water from hard to soft can usually be found in the shape of waste heat, and where both warm and cold water are required the cost of treatment is reduced to *nil*. Where, however, no waste heat can be provided and the heat has to be obtained from the steam boiler the cost is as nothing compared with the saving effected in fuel by the prevention of incrustation and wear and tear and cleaning out of boilers. The accepted estimate of cost for fuel for evaporating 1000 gallons of water is 7*s.* 6*d.* and the cost of bringing the water from 50° F. to boiling point is 1*s.* Given this rate the cost of softening by the Lawrence process would be about one-eighth that of boiling in the ordinary way—that is, 1½*d.* per 1000 gallons in lieu of 1*s.* per 1000 gallons. And, moreover, practically the whole of the heat is returned to the boiler. Since, however, the accepted saving in coal where a boiler is always kept in a perfect condition of efficiency is at least 15 per cent. the economy of the Lawrence process, apart from the saving of wear and tear, is still more manifest.

For domestic drinking purposes, in particular, this apparatus, it is said, has the advantages of being cheap, light, very portable, and not liable to get out of order. To give some idea of its lightness and portability an apparatus capable of heating and cooling 150 gallons per hour, specially designed for military purposes, may be carried by one man. Further, a very important application of the method is to milk, which can be sterilised in large quantities in a modified form of this apparatus and delivered partially cooled.

Our own experiments with the Lawrence apparatus have been directed chiefly to ascertaining its softening power upon hard waters and as to how far it could be trusted to produce a pure and sterile effluent. We have already recorded an experiment establishing its capacity for greatly reducing the hardness of chalky water. Thus in the case of the New River (London) supply the hardness was reduced from 16° to 6°, a reduction of 10 degrees, and in some cases somewhat lower.

In regard to bacteriological experiments the action of the apparatus was first tested on the ordinary tap water which was supplied by the New River Company to ascertain whether the ordinary water organisms were destroyed and the fluid thus rendered sterile. An emulsion of the common pus organism, staphylococcus pyogenes aureus, was then mixed with this tap water and subjected to the sterilising process. As this organism exhibits a resistance to heat and antiseptic substances somewhat greater than that manifested by the bacillus typhosus and Koch's cholera bacillus, the two most important disease organisms usually supposed to be transmitted through drinking-water, we may conclude that if the pus organism is destroyed the disease organisms referred to would share a similar fate. As a final and severe test an emulsion from a potato bacillus culture containing very resistant spores was passed through the apparatus. In the experiments with New River water the following results were obtained:—

Number of colonies present per c.c. in original water, from 60 to 80; number of colonies present per c.c. in water after process, none. It will be seen from this that the water was rendered absolutely sterile as it issued from the apparatus. In the experiment with staphylococcus aureus the following results were obtained:—

Staphylococcus pyogenes aureus.—Staphylococcus aureus present in 1 c.c. original fluid, many colonies; staphylococcus aureus present in 1 c.c. of fluid after process, none. We may conclude from this experiment that the disease germs transmitted through drinking water, which are non-sporebearing, would by this process be rendered innocuous. In the experiments with potato bacillus the following results were obtained:—

Potato bacillus.—Potato bacillus present in 1 c.c. original fluid, many colonies. Potato bacillus present in 1 c.c. of fluid after process, none. This experiment would seem to indicate that these very resistant spores had been completely destroyed; but this conclusion is rendered doubtful by a further test to which this fluid was subjected—viz., a larger quantity of the fluid was taken and added to a flask of broth and incubated at 30° C. for three days. When examined it was found that a film of the potato bacillus had grown over its surface. In this experiment where we are dealing with a larger quantity of the fluid the possibility of the entrance of this organism (which is a very common chance contamination) is not absolutely excluded, but it seems more probable that all the spores are not destroyed during this process. It is, however, probable that by making the column of the boiling chamber higher an increased columnal pressure of water acting upon the rising steam would be obviously obtained, and accordingly the temperature would attain several degrees above 212° F., in which case the sterilising efficiency of the apparatus would be absolute. The experiments made with a small domestic apparatus indicate as a whole, however, that this process would render a water harmless so far as regards the transmission of specific infective disease by means of water.

The apparatus offers not the slightest difficulty in working, it is perfectly continuous, and the source of heat may be gas, oil, or an ordinary coal fire. The fact of it reducing to a very considerable extent the hardness of hard waters is alone important both from an economic and hygienic point of view. We understand that the plant is already in use producing soft water on a large scale for industrial purposes where the danger of incrustation in steam boilers must be most carefully avoided. We are more concerned with its merits as a purifier of water for drinking purposes, and our experiments have established that for this purpose its action is excellent. The water it yields is perfectly clear and bright, palatable yet soft to the taste, while, above all, it gives absolute security against the possibility of water for domestic drinking purposes becoming a source of infection or disease

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Manchester Sanitary District.—Dr. Niven's report for the year 1895 is, as are all his reports, full of interest, and it bears indication of an enormous amount of work. The statistics of Manchester are dealt with in a manner which is highly instructive, and the figures relative to age and district distribution will be of great local value. With reference to the vital statistics of Manchester as a whole it is encouraging from a commercial standpoint to note that the marriage and birth rates both show a considerable increase on the rates for 1894; but, on the other hand, it is to be remarked that the death-rate allows, as Dr. Niven terms it, of no such cheerful reflection, since this rate was exceeded only by those of Liverpool and Salford. There was, indeed, a net loss, as compared with the figures of 1894, of over 1000 lives, the increased mortality being chiefly recorded under diarrhœa, certain infectious diseases not directly controlled by the sanitary authority, constitutional, circulatory, and respiratory diseases. The figures for 1895, however, showed marked diminution from diseases of the nervous system, and Dr. Niven thinks that the decrease under the heading "convulsions" may be due to the improved methods of infant feeding. Respiratory diseases Dr. Niven regards as partly due to the atmosphere of certain parts of Manchester and to the habits of the people, and also to the effluvium arising from the insanitary condition of the ground; in fact, the filthy state of the soil, which is caused by defective pails and privies, is matter for special condemnation at the hands of Dr. Niven on several accounts. The infantile mortality of Manchester for 1895 rose with that of the whole country and amounted to no less than 203 per 1000, diarrhœa, measles, and wasting diseases being chiefly responsible for the deaths. The section of Dr. Niven's report which deals with scarlet fever is of considerable originality. Space is also devoted to the interesting subject of "return" cases of scarlet fever, a matter to which Dr. Niven has paid much attention. He is inclined to think that the storing up of infection in the nasal cavities, and possibly also the lungs, of discharged patients, is the most frequent source of mischief, and he considers that the inhalation of a highly-infected atmosphere, such as is met with in hospital wards, is more likely to lead to the storing up of infection than would be the case in a child isolated at home. The figures, too, which Dr. Niven adduces tend to show that the "return" cases in Manchester are due to something connected with the discharged patient, and he is not inclined to think that the unpacking of some imperfectly disinfected article on the return of the patient from hospital is a very potent agent in the causation of "return" cases—at any rate, under the conditions of disinfection which are now practised in Manchester. The conclusion at which Dr. Niven arrives has led him to advocate that all children shall pass through the relatively little infected atmosphere of a convalescent ward before discharge, and that the mouth and nostrils should be carefully sprayed with some non-irritant antiseptic. The methods adopted for the bacteriological examination of cases of diphtheria in Manchester are such as must facilitate enormously the work of medical practitioners. It is possible, it seems, to telephone to the Health Office for a tube, to have it conveyed to the medical man's residence or to the patient's home by special messenger, and to despatch the charged tube by means of the same messenger to the bacteriological laboratory. It is furthermore arranged that in the event of the bacteriological examination yielding negative results the notification fee is nevertheless paid to the medical practitioner. All these facilities have been so appreciated by the profession that a bacteriological examination is made in almost every living case and occasionally in instances where death has taken place. It is interesting to note that out of a series of 106 cases examined, in thirty-five only were positive results obtained. One of the effects of these bacteriological examinations will be, Dr. Niven points out, to modify very materially what was previously the apparent distribution of diphtheria in Manchester, as it has been shown that the majority of cases which were not diphtheria were scarlet fever. In connexion with the subject of diphtheria Dr. R. W. Marsden contributes a report upon the use of antitoxin, and he speaks most highly as to its value, more especially in the direction of aiding the disappearance of membrane and in reducing the effects of toxæmia. Dr. Marsden has never seen serious results follow the injection of the serum. Dr. Niven devotes considerable space to the subject of enteric fever, and although there is much difficulty in detecting the origin of many cases he finds that the condition of the privies and of the ground connected with them has in Manchester a decided effect in the production of typhoid fever; and he further shows that the middens assert their influence chiefly in autumn—i.e., when the activity of the soil in relation to germ multiplication is probably at its highest. We notice, by the way, that the privies in Manchester are disinfected when necessary by a solution of chloride of lime, three ounces to the gallon. Under Dr. Niven's advice measles is not yet notifiable in Manchester, but a system is in force by which the school attendance officers diffuse information and advice in respect of this disease and of whooping-cough. The subject of the notification of tuberculosis is again discussed by Dr. Niven, and he reports his recommendation of last year that Manchester should lead the way in this matter.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN thirty-three of the largest English towns 4780 births and 3545 deaths were registered during the week ending Dec. 26th. The annual rate of mortality in these towns, which had declined in the three preceding weeks from 19·4 to 18·2 per 1000, further fell last week to 17·0. In London the rate was 15·1 per 1000, while it averaged 18·4 in the thirty-two provincial towns. The lowest rates in these towns were 11·0 in Croydon, 12·3 in Derby, 12·5 in Brighton, and 13·4 in Birkenhead; the highest rates were 21·5 in Preston, 21·7 in Blackburn, 22·0 in Hull, and 31·8 in Plymouth. The 3545 deaths included 279 which were referred to the principal zymotic diseases, against 356 and 357 in the two preceding weeks; of these, 68 resulted from diphtheria, 64 from whooping-cough, 60 from measles, 32 from "fever" (principally enteric), 29 from scarlet fever, and 26 from diarrhœa. No death from any of these diseases was recorded last week in Croydon or in Swansea; in the other towns they caused the lowest death-rates in Brighton, Bolton, Burnley, and Oldham; and the highest rates in Salford, Nottingham Blackburn, and Plymouth. The greatest mortality from measles occurred in Nottingham, Gateshead, Bradford, and Plymouth; and from whooping-cough in Birkenhead, Salford, Huddersfield, and Blackburn. The mortality from scarlet fever and from "fever" showed no marked excess in any of the large towns. The 68 deaths from diphtheria included 38 in London, 6 in West Ham, and 3 in Liverpool. No fatal case of small-pox was registered during the week under notice either in London or in any other of the thirty-three large towns. There were no small-pox cases under treatment either in the Metropolitan Asylum Hospitals or in the Highgate Small-pox Hospital during the week ending Saturday last, Dec. 26th. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital at the end of the week was 3763, against numbers declining from 4164 to 3868 at the end of the nine preceding weeks; 219 new cases were admitted during the week, against 350, 353, and 291 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had declined in the six preceding weeks from 492 to 302, further fell to 284 last week, and were 318 below the corrected average. The causes of 60, or 1·4 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Cardiff, Oldham, Newcastle-upon-Tyne, and in ten other smaller towns; the largest proportions of uncertified deaths were registered in West Ham, Birmingham, Preston, and Sheffield.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns,

which had increased in the three preceding weeks from 20·4 to 21·0 per 1000, further rose to 22·1 during the week ending Dec. 26th, and exceeded by 5·1 per 1000 the mean rate during the same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 12·0 in Perth and 14·0 in Leith to 23·5 in Dundee and 26·0 in Glasgow. The 644 deaths in these towns included 106 which were referred to the principal zymotic diseases, against 68 and 98 in the two preceding weeks; of these, 48 resulted from measles, 26 from whooping-cough, 16 from diarrhœa, 8 from scarlet fever, 4 from diphtheria, and 4 from "fever." These 106 deaths were equal to an annual rate of 3·7 per 1000, which was 2·4 above the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of measles, which had been 40, 37, and 54 in the three preceding weeks, declined to 48 last week, of which 41 occurred in Glasgow, 4 in Paisley, and 3 in Aberdeen. The deaths from whooping-cough, which had been 9 and 7 in the two preceding weeks, rose again to 26 last week, of which 20 were recorded in Glasgow and 3 in Edinburgh. The 8 fatal cases of scarlet fever exceeded the number registered in any recent week, and included 5 in Glasgow and 2 in Dundee. The deaths from diphtheria, which had been 9, 2, and 7 in the three preceding weeks, declined to 4 last week, of which 2 occurred in Greenock. The 4 fatal cases of "fever" included 2 in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 170 and 121 in the two preceding weeks, rose again to 152 last week, and were 10 above the number in the corresponding period of last year. The causes of 31, or nearly 5 per cent., of the deaths in these eight towns were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 25·8 and 27·3 per 1000 in the two preceding weeks, declined again to 26·5 during the week ending Dec. 26th. During the past thirteen weeks of the current quarter the death-rate in the city has averaged 26·3 per 1000, the rate during the same period being 17·9 in London and 17·5 in Edinburgh. The 178 deaths registered in Dublin during the week under notice showed a decline of 5 from the number in the preceding week, and included 21 which were referred to the principal zymotic diseases, against 21 in each of the two preceding weeks; of these, 15 resulted from whooping-cough, 3 from scarlet fever, 2 from measles, 1 from "fever," and not one either from small-pox, diphtheria, or diarrhœa. These 21 deaths were equal to an annual rate of 3·1 per 1000, the zymotic death-rate during the same period being 1·0 in London and 0·8 in Edinburgh. The fatal cases of whooping-cough, which had been 4 and 12 in the two preceding weeks, further rose to 15 last week, and exceeded the number recorded in any week since February, 1886. The deaths referred to scarlet fever, which had been 10 and 5 in the two preceding weeks, further declined to 3 last week. The mortality from "fever" was also below that recorded in any recent week. The 178 deaths in Dublin last week included 30 of infants under one year of age, and 32 of persons aged upwards of sixty years; the deaths both of infants and of elderly persons showed a decline from the numbers returned in the preceding week. Thirteen inquest cases and 8 deaths from violence were registered; and 58, or nearly a third, of the deaths occurred in public institutions. The causes of 10, or nearly 6 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

ARMY MEDICAL STAFF.

SURGEON-CAPTAIN THOMAS has been posted to Hounslow for duty. Surgeon-Captain Jackson has embarked for foreign service. Surgeon-Captain M. P. Holt has left for India. Surgeon-Captain J. W. Jennings has been selected for employment with the Egyptian Army. Surgeon-Captain H. A. Haines has been posted for duty to Cork. Surgeon-Major White has taken over charge of officers, women, and children, and female hospital at the Curragh Camp from Surgeon-Major G. T. Trewman. Surgeon-Captain V. H. W. Davoren has been posted for duty to the Royal Infirmary, Dublin.

INDIA AND THE INDIAN MEDICAL SERVICES.

Surgeon-Captain R. M. Moir, Resident Surgeon, Presidency General Hospital, is appointed to act as First Resident Surgeon of that institution until further orders. Surgeon-Captain F. O'Kinealy is appointed to do general duty at the Presidency and to act as Second Resident Surgeon, Presidency General Hospital, until further orders. Surgeon-Major G. Jameson, Civil Surgeon of Tippera, is appointed, on return from furlough, to act as Civil Surgeon of Nadia, and Surgeon-Major J. F. Tuohy, Civil Surgeon, to the Saharanpur District until further orders. Surgeon-Major G. M. J. Giles, Civil Surgeon, is transferred from Saharanpur to Sitapur. Surgeon-Major E. S. Brander, Civil Surgeon, is transferred from Sitapur to Jhansi. Surgeon-Major G. Shewan, Officiating Civil Surgeon, is transferred from Jhansi to Bijnor. Surgeon-Captain Daly, on arrival from England, has been posted to the Bombay District.

NAVAL MEDICAL SERVICE.

Deputy Inspector-General Robert Hay, M.D., is appointed to Bermuda Hospital, vice Deputy Inspector-General Thomas Browne, time expired, who has been appointed to Stonehouse.

The following appointments are announced:—Fleet-Surgeons: Valentine Duke to the *Virid;* Thomas C. Hickey to the *Thunderer;* Edward W. Luther to the *Repulse;* Alfred T. Corrie to the *Durham;* and Archibald M'Kinlay to the *Resolution*. Staff Surgeons: Donald Hoskyn to the *Centurion;* and Harold R. Osborne to the *Hermione*. Surgeons: C. H. Upham to the *Torch;* Bernard Ley to the *Lapwing;* Murray P. Jones to the *Resolution;* John A. L. Campbell to the *Stork;* and Richard H. Way to the *Sharpshooter*.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant Alexander Macdonald, M.B., the Queen's Rifle Volunteer Brigade, to be Surgeon-Lieutenant.

VOLUNTEER CORPS.

Artillery: The Tynemouth (Western Division, Royal Artillery): John Cromie, gent., to be Surgeon-Lieutenant. 1st Cornwall (Duke of Cornwall's Western Division, Royal Artillery): Surgeon-Lieutenant Leonard Frank Houghton is appointed Second Lieutenant. *Rifle:* 5th Volunteer Battalion the Royal Scots (Lothian Regiment): Surgeon-Lieutenant T. Wood, M.B., to be Surgeon-Captain. 3rd (Dumfries) Volunteer Battalion the King's Own Scottish Borderers: Surgeon-Major A. D. MacDonald, M.D., to be Surgeon-Lieutenant-Colonel. 5th Volunteer Battalion the Cameronians (Scottish Rifles): Surgeon-Major H. Arthur, M.D., resigns his commission, also is permitted to retain his rank and to continue to wear the uniform of the Battalion on his retirement.

SANITARY STATE OF CALCUTTA.

The very trenchant remarks of Sir Alexander Mackenzie, the Lieutenant Governor of Bengal, in his late speech as to the state of some of the worst districts of Calcutta have not, we hope, been without their effect on the municipal authorities of that city. The report of the Calcutta Medical Board has roused the attention of the Local Government to the subject, and it is certain that some action will have to be taken to improve the existing state of things. The Medical Board has begun to take evidence regarding the sanitary condition of the city. They are empowered to call any witnesses they may desire.

MILITARY INVALIDING FROM INDIA.

The *Times of India* of Dec. 12th states that, in spite of the agitation of a few months ago, the arrangements for invaliding seem to be more faulty than ever. Invalids who passed a medical board as far back as September last were many of them still at Deolale awaiting passage home. Our Indian contemporary asks, how long it will take the authorities to learn to bow to the inevitable, and to provide special accommodation for the sick? There can be no doubt, we think, that steamers specially fitted and provided for the purpose should be set apart for the sick returning from India.

DEATHS IN THE SERVICES.

Surgeon-Lieutenant-Colonel Francis Cobham Nicholson, A.M.S. (retired), on Dec. 24th, aged fifty-one years. He

entered the Army in 1869, and reached the rank of Brigade-Surgeon-Lieutenant-Colonel in 1894. He served with the Looshai expedition, and received the medal with clasp.

DR. YERSIN'S ANTITOXIC SERUM.

It is stated that a small quantity of Dr. Yersin's antitoxic serum, to the use of which in the treatment of plague we have more than once referred, is on its way to Bombay and will be employed in the treatment of cases in that city.

GOOD SERVICE PENSIONS.

The Queen has approved of the grants of £100 a year as Good Service Pensions to Surgeon-Major-General J. Jameson, M.D., Director-General of the Army Medical Department, and to Surgeon-Major-General C. H. Giraud, retired pay.

Correspondence.

"Audi alteram partem."

"THE ELECTION OF DIRECT REPRESENTATIVES TO THE GENERAL MEDICAL COUNCIL."

To the Editors of THE LANCET.

SIRS,—I am unwilling at this season of peace and goodwill to write anything which could give umbrage to any of those from whom it is my fate to differ, or which could fan into flame the expiring embers of a finished controversy. I therefore propose to leave unnoticed such passages in the letters contained in THE LANCET of Dec. 26th as may either be, or appear to be, provocative, and to content myself with offering a few words of simple disclaimer or explanation. In the first place, I do not quite know what Dr. Drage means by the "success of" my "friends." The word "friends" is not used, I imagine, to express personal friends, but only persons with whom one has been working for the attainment of some common end. With reference to the election, there are no persons who stand to me in this relation. Except in the case of Dr. Glover, I have yet to become acquainted with the successful candidates, and I took no part in promoting their election. I neither advocated nor depreciated the claims of any candidate and I did not vote. I have never voted at a Council election and I do not intend ever to vote at one. I was indifferent as to the result. There was no candidate whose published opinions were sufficiently like my own to induce me to accept him as my representative; and I felt entire confidence that the gentlemen elected, even if they held erroneous opinions about the duties of the Council at the time of their election, would soon have such errors corrected by experience and responsibility.

I expressed my feeling that the Medical Defence Union had been unwise in meddling at all with the election, and I pointed out the light in which, as it seemed to me, its action might be viewed by impartial persons. But I did not even suggest the view of the case which Dr. Drage repudiates, that the candidates favoured by the union were partners to any bargain restrictive of their entire freedom of action. They were presumably selected by the union on account of views which they were supposed to hold; but I did not even go so far as to say that, from the union point of view, the selection had been judicious.

Dr. Drage's concluding paragraph contains an expression of thankfulness to practitioners who voted for him, "notwithstanding the virulent attacks of *such men* as Mr. Carter and his friends." Here, again, I am perplexed. The construction of the sentence does not make it quite clear whether the "attacks" referred to were made actually by me and by my friends or by other persons our congeners; but it seems plain, from the use of the word "notwithstanding," that they were made before the election. In this connexion, as already explained, I have no "friends." I have never made any attack on Dr. Drage, either virulent or otherwise, in my life, nor have I seen or heard of any attack or attacks upon him by others; nor can I conjecture why he should have been attacked by anybody. Dr. Drage continues that my "enmity" and that of my "friends" is a "compliment." On this point I hope there may be differences of opinion; but my "enmity" is at least a compliment which has never been paid to Dr. Drage. My knowledge of him is insufficient to afford a basis either for enmity or friendship, and I have never thought of him at all except as a professional brother of some distinction, with whose views, as far as I knew them, I did not always agree. May I add, in reply to other correspondents, that the reason why I think direct representation a farce is because the functions of the Council, which depend upon Acts of Parliament and judicial interpretations, and not, as supposed by Mr. Dickinson, upon the "views" of the members, do not include any in the discharge of which direct representatives have any advantage over other people? I think that the leaders of the movement for direct representation confounded a means with an end. They obtained their representatives without reflecting how little there would be for them to do. They should first have sought to increase the powers of the Council and only afterwards to modify the composition of the body by which the powers were to be exercised. Either they did not perceive this or they found that any attempt to obtain increased powers would be fruitless. All that they gained was an illusory concession, which left the Council with its original duties of protecting the public against inadequate medical education and against unworthy members of the profession, but which gave it no means of doing anything more. As for the reasons for the retirement of Sir Walter Foster and Mr. Wheelhouse I should like to remind Mr. Colin Campbell that a general understanding is often only a misunderstanding, and to quote to him your own statement, that the reasons which actuated these gentlemen "have never been fully understood." I believe I am acquainted with some of them, but only from private conversations which it would be indecorous to repeat, even if I could be sure of repeating them correctly. Finally, it is not quite accurate to say that I "think little" of the votes cast in favour of the successful candidates. The truth is rather that I look at both sides of the balance and that I think also of the votes which were cast against them. It will be time enough to compare the votes given for direct representatives with those given for corporation representatives when any members of the latter class are found to rest their claims for consideration upon the numerical magnitude, instead of upon the character and the fitness, of their respective constituencies.

I am, Sirs, your most obedient servant,

Harley-street, W., Dec. 29th, 1896. R. BRUDENELL CARTER.

To the Editors of THE LANCET.

SIRS,—Lest silence on my part, under the circumstances, should be misconstrued, will you also kindly allow me through the medium of your columns to cordially thank the 564 members of the profession in Scotland for the honour which they did me in giving me the very substantial and perfectly spontaneous support which they did? Late of appearing in the contest as I was, and with no organisation, not even the services of a law agent, the election in Scotland clearly demonstrated two things—first, that there is a large feeling of dissatisfaction in Scotland with the present state of medical economy; and secondly, contrariwise, that there exists a remarkable indifference to the remedying of it. Out of a constituency of close upon 4000, not 50 per cent. took the trouble to return their voting papers, so that the present representative may be held as personifying the views of about one-third of the constituency. If absolute demoralisation and disintegration of the profession, which imminently threaten, are to be averted the first step to be taken is in the direction of a new Medical Act, and with a united profession throughout the kingdom this could soon be an accomplished fact.—I am, Sirs, yours faithfully,

Glasgow, Dec. 29th, 1896. D. CAMPBELL BLACK.

To the Editors of THE LANCET.

SIRS,—Mr. Brudenell Carter's analysis of the poll [1] is both useful and instructive, but when he uses his figures for the purpose of condemning the principle of direct representation his deductions are somewhat startling. That he, of all men, should argue that none of the gentlemen recently elected represents an appreciable number of the profession is very curious. I believe Mr. Carter holds his seat through the patronage of a few wardens of the Apothecaries' Society, the election to this position, as in the case of the "Worshipful Masters" in the other like City companies, such as the Tallow-chandlers, Cutlers, Plumbers, &c., being conducted after the

[1] THE LANCET, Dec. 19th, 1896, p. 1789.

doctrine of "Apostolic Succession," with the difference that on this principle the Church ensures the undoubted merit and high position of the members upon whom honour is conferred. In the case of the companies, however, there is no such guarantee; the most popular member socially and the man who knows best how to dine well is generally pushed to the front. That the Apothecaries' Company happens to be represented on the General Medical Council by so able an advocate of its peculiar claims as Mr. Brudenell Carter is quite an accident, and the power behind him is practically represented by the votes of probably five electors, more or less, and of the value of their judgment and capacity for selection we know but little. Dr. Rentoul will be able to enlighten the Council and the profession upon this matter, for Mr. Carter will find in his new colleague an expert in knowledge of all *the little ways* of the "close corporations." Mr. Carter assures us that direct representation is now removed from the range of practical politics. I would remind this gentleman that it is but a short time since this was said of the Parliamentary franchise, and he may be perfectly satisfied that universal direct representation of the profession upon the General Medical Council will be adopted in the near future, for the Statute of Limitation has no place in such matters.—I am, Sirs, yours faithfully,

Old Trafford, Dec. 22nd, 1896. JAMES BRASSEY BRIERLEY.

THE EIGHTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY: PUBLICATION OF TRANSACTIONS.

To the Editors of THE LANCET.

SIRS,—I beg to inform you that the Transactions of the Eighth International Congress of Hygiene and Demography held at Budapest in September, 1894, are now ready for publication, and the remaining seven volumes will be sent out early in January, 1897. As many members might have since changed their residence, I would feel greatly obliged if you would kindly publish this note in your valuable periodical in order that members might be able to send in their addresses in time to the Editor (Dr. Sgmd. de Gerlóczy, St. Rochus Hospital, Budapest). An extra copy of the Transactions will be also sent to you for your own use.

I remain, Sirs, yours obediently,

Budapest, December, 1896. Dr. GERLÓCZY (The Editor).

THE REPORT OF THE ROYAL COMMISSION ON VACCINATION.

To the Editors of THE LANCET.

SIRS,—A weak result of a weak-kneed Commission, or as you better, certainly more Parliamentarily, put it, "Once more we have to point out that the omission to recommend re-vaccination as an administrative duty constitutes the one great flaw in the very valuable deliverance of the Commissioners." It would be well, if vaccination is to be saved to us in its whole utility, for some sound-minded member of the profession, with good time on his hands and living near the British Museum, to work through, from the time of Jenner's stupendous discovery, a dozen newspapers—say six London and six provincial ones—and to give the public in cheap pamphlet form quotations from each newspaper for each year, especially those with reference to the delight of the public in the gradual diminution of the effects of small pox—viz., mortality, loss of noses and eyes, and general pitting of the faces—also noting the reports from foreign countries which show equal delight in the use of vaccination and, as the years went on, the value of re-vaccination. Injury from vaccination—such as erysipelas and syphilis—I take it, would be avoided if no vaccination was made except from calf vaccine supplied by Government or their recognised agents, or possibly, by public vaccinators—in this latter case with lymph only *once* removed from calf. I say; "possibly," because I have reason to believe from my small experience that vaccination with calf lymph sometimes fails and that vaccination only succeeds when humanised calf lymph is used.

I would say let Parliament make vaccination and re-vaccination compulsory, and each for the first time to be made with calf vaccine; on failing to repeat with calf vaccine; but on second failures that once humanised calf lymph should be used. I am, Sirs, yours faithfully,

Canterbury, Dec. 23th, 1896. PUGIN THORNTON.

"THE NEW SYDENHAM SOCIETY'S MEDICAL LEXICON."

To the Editors of THE LANCET.

SIRS,—Mr. Kesteven's letter on the slow rate of publication of the New Sydenham Society's Medical Lexicon deserves some attention from the council of the society. I attended the last annual meeting of the society and urged that an attempt should be made to conclude the Lexicon before the close of the century. There was not a large meeting of members, only about half a dozen being present; but this, I am informed, is the usual number who attend on such occasions. The society has a president, 16 vice-presidents, 32 members of council, 1 treasurer, 3 auditors, and 1 honorary secretary, but none of these officials were present and no one could explain the slow rate of progress in the publication of the Lexicon. The chairman, however, promised to forward a strong representation of the wishes of the meeting that some effort should be made to bring the publication to a conclusion.

I am, Sirs, yours faithfully,

Carlisle, Dec. 28th, 1896. HENRY BARNES, M.D. Edin.

"ALLEGED ARSENICAL POISONING."

To the Editors of THE LANCET.

SIRS,—Dr. Murrell has written his letter[1] under a misapprehension. I stated that the fabric to which he refers contained approximately $\frac{1}{10\,000}$th of a grain of arsenic per square yard. In this I was supported by Mr. W. Thomson, who found the same proportion. This is only one part in 1 300,000 of the fabric. Hence Dr. Murrell's criticisms on what he supposes I said fall to the ground. Every point to which he refers was fully before the court—the delicacy of the tests for arsenic and for determining its amount when admixed with organic matter, the proper doses when taken by the mouth, and the influence of inhalation upon the dose.

I am, Sirs, yours faithfully,

Guy's Hospital, Dec. 29th, 1896. THOMAS STEVENSON.

"THE TRAINING OF NURSES IN RELATION TO REGISTRATION."

To the Editors of THE LANCET.

SIRS,—If you had waited to hear the other side of the story your correspondent has told you you would have found that the feeling of discontent to which you refer as arising among the members of the Royal British Nurses Association is limited to a small minority. The facts are these. A proposal was laid before the council of the association in July last to admit *properly trained and qualified* mental nurses into the association. This matter was referred to a committee of the council who reported strongly in favour of the proposal, and the report was unanimously adopted. Now before the details have even been discussed by the executive committee a letter has been sent out signed by Sophia Wingfield, protesting against the admission of "*untrained asylum attendants* as members of the association," and stating that once the "asylum attendants are admitted as registered members of the corporation of trained nurses the public will have no means of protecting themselves against untrained persons." This is not the case. The proposal is that none but mental nurses of not less than three years' training in a hospital or asylum for the insane with not less than forty beds shall be admitted to registration, and it will be necessary for each nurse to possess the certificate of the Medico-Psychological Association for proficiency in nursing. This certificate can only be procured after a rigid curriculum of instruction and practical tuition and training in the nursing of the sick and insane now carried on in every hospital and asylum in the kingdom under the direction and practical instruction by the medical staff and attendance upon courses of lectures and demonstrations followed by strict gent

[1] THE LANCET, Dec. 26th, 1896.

examinations inferior to no examinations for hospital trained nurses—nay, vastly superior to many.[1] These are the nurses it is proposed to admit to the register as a distinct class with a separate department in the register, a separate and distinct badge, and to be enrolled as M.N.R.B.N.A.—that is, mental nurses of the association—to distinguish them from the purely hospital trained nurses. It is for the protection of the public that this proposal is brought forward. No nurses are more urgently required than those specially trained and educated to nurse mental cases. The ordinary hospital trained nurse will not, and could not if she would, undertake them; and it is by placing all those who are worthy of the confidence of the public upon the published register of the association that the public will be enabled to ascertain whether they are properly trained and qualified for their work.

The royal charter of the corporation especially provides for them "to affiliate to themselves or amalgamate with themselves or enter into any arrangements for wholly or partially working in conjunction with any person or any body of persons, corporate or unincorporate, formed for all or any of the purposes for which the corporation themselves are formed or for any purposes analagous or corresponding thereto. As a matter of fairness to those highly qualified mental nurses and of justice to the public it is proposed to place them on the published register of the association.

I am, Sirs, your obedient servant,

T. OUTTERSON WOOD, M.D. Durh.,
Member of the Executive Committee and of the Registration Board of the Royal British Nurses Association.

Margaret-street, W., Dec. 28th, 1896.

*** Our remarks on Dr. Wood's explanation, which appears to us entirely satisfactory, will be found in an annotation dealing with this subject.—ED. L.

"GUAIACOL AND CREOSOTE IN PULMONARY PHTHISIS."

To the Editors of THE LANCET.

SIRS,—Some of your readers may be glad to know that a considerable reduction has been effected in the prices of carbonates of creosote and of guaiacol, so that it is now possible to prescribe them in cases where formerly the cost was prohibitive. A letter appears in THE LANCET of Dec. 19th, 1896, from Dr. Jones-Humphreys which calls for a few remarks. I am pleased to see that he is able to confirm my statements as to the value of this group of remedies; but I think he fails to prove a "specific action" of guaiacol on the kidneys in albuminuria. No doubt it has an action on some kinds of albuminuria, as his own case shows. But this action is probably indirect and depends on the destruction of some other irritant; and it would be unsafe without more evidence to conclude that the drug will be equally useful in albuminuria, say, after scarlet fever. The formula which he gives will answer well when small doses of guaiacol are prescribed; but such a mixture would have to be taken by the pint in some cases, which would be inconvenient, to say the least. There are few remedies with a wider range of dosage, and the best dose in each case is very much a matter of experience.—I am, Sirs, yours truly,

F. R. WALTERS, M.D., M.R.C.P. Lond.

Welbeck-street, W., Dec. 28th, 1896.

HOSPITAL REFORM ASSOCIATION.

To the Editors of THE LANCET.

SIRS,—At the request of the Hospital Reform Association Dr. W. Knowsley Sibley and Dr. Ernest Snape have kindly undertaken to make a report on the special hospitals of the metropolis. The association will feel grateful if the officers of these institutions will afford them facilities for making their report as complete as possible.

I am, Sirs, yours faithfully,

Cardiff, Dec. 28th, 1896. T. GARRETT HORDER, Hon. Sec.

[1] There are now about 2000 of these certificated nurses on the register of the Medico-Psychological Association, but the register is not published.

"MIRROR SPEECH."

To the Editors of THE LANCET.

SIRS,—Dr. Marcel Baudouin, whose signature is appended to a short article[1] on Dr. Doyen's unique case,[2] informs his readers that he himself is a born *gaucher*, and confirms an observation made some time ago in THE LANCET,[3] that to many markedly left-handed persons mirror writing comes naturally. I happen to be likewise a born "kithogue," as they say in Ireland, and having now for the first time essayed the mirrorwise feat beg to add my humble testimony to that of the distinguished Vendean writer. The term left-handed is generally regarded as depreciatory; in fact, according to the dictionary, its synonyms are in English awkward, clumsy, stupid, insincere, malicious; while in French *gaucherie* is the usual word for uncouthness. From the point of view of a kithogue this philological syllepsis is a genuine grievance—an injustice foisted on the few through the overweening complacency of the majority. There is nothing essentially awkward or uncouth in making use of the left hand for actions ordinarily performed with the right. The uncouthness really exists in the eyes of the right-handed multitude, who vainly imagine that their way of doing a thing must necessarily be the only correct way. Of course, a left-handed person may be awkward, &c., but so are many of the so-called dexterous. Practically, it is advantageous to a man, and especially when he is a surgeon, to be born left-handed, for custom and prejudice compel him to exercise his right hand while nature inclines him to use the left on every possible occasion. In this way, yielding equally to both forces, he becomes ambidextrous. So far from being victims to awkwardness, &c., it will be found that kithogues are for the most part adepts in games wherein the hand takes a prominent part—such as cricket, racquets, billiards, and so on. No sooner does the cry "left hand" resound across the sward than the fielders prepare themselves for leather hunting; and, although he certainly does look uncouth, a sinistrous coachman may be trusted not to let his horses down. It cannot be denied that the complaints of the kithogues against philologists have in reality a genuine foundation. It is, therefore, high time that their sylleptic grievances should be remedied.

I am, Sirs, yours faithfully,

Dec. 22nd, 1896. KITHOGUE.

HOSPITAL ABUSE.

(BY OUR SPECIAL COMMISSIONER.)

V.—MANCHESTER.[4]

An Attack on the General Practitioners and a Defence of the Hospitals and the Consultants.

THE impression prevails that the general practitioner is the victim of hospital abuse, that his professional standard is lowered and his income very much affected by the competition of hospitals, which rob him of his patients. This, in a measure, is all true; but there are two sides to every case, and if the hospitals lay themselves open to criticism the general practitioner may be not altogether free from blame. It so happens that in commencing my inquiry at Manchester I heard more against the general practitioner than in his favour. Subsequently the arguments on the other side were brought forward, and I think the truth will best be attained by taking both in due order. My first visit was to a leading consulting surgeon of a large hospital. His opinion was very emphatic. The general practitioners were themselves the authors of much of the hospital abuse that prevailed. General practitioners were constantly sending well-to-do patients to the hospital. For instance, a person suffering from empyema was recommended to him the other

[1] Le Progrès Médical, Nov. 28th, 1896.
[2] THE LANCET, Dec. 19th, 1896, page 1173.
[3] THE LANCET, Aug. 3rd, 1895, page 273.
[4] The previous articles on this subject were published in THE LANCET on the following dates: (1) Sept. 26th, 1896, Plymouth and Devonport; (2) Oct. 10th, 1896, Exeter; (2 *continued*) Oct. 17th, 1896, Exeter; (3) Oct. 31st, 1896, St. Thomas's Hospital, London; (4) Nov. 14th, 1896, Liverpool; (4 *continued*) Nov. 21st, 1896, Liverpool; and (4 *continued*) Dec. 12th, 1896, Liverpool.

day. The medical man had a big bill against this patient, so big as to be unmanageable and he feared that he might not be paid at all, so this general practitioner sent the case to the hospital in the hope that the patient might be more rapidly cured and also have time to recover himself financially. The hospital surgeon or physician is thus, it is alleged, called upon to work gratuitously so as to enable the general practitioner to recover his fees from a fairly well-to-do patient. In this incident the secretary of the hospital refused to admit the patient unless he paid 10*s.* a week towards his maintenance. This constituted a small compensation for the hospital, but it was no compensation at all for the medical staff. The majority of in-patients admitted to the hospital were sent by medical men because they generally gave the preference to cases thus medically recommended. As a practical result the outcome amounted to this—that if the hospital occasionally robbed the general practitioner of a patient the general practitioner very frequently robbed the consultant of patients by sending them to the hospital. The consultant, however, must suffer quietly. He cannot complain, otherwise he would be boycotted by the general practitioners. Thus, as another case in point, my informant saw a little while ago at his hospital a woman who was suffering from a dermoid cyst of the ovary. The medical man who had attended her knew that she could afford to pay a consultant's fee and might have gone to the consulting surgeon's private operating home. The charge at such homes varies from three to six guineas a week. Perhaps an outlay of some £30 might have been necessary. The general practitioner fears that if he advises his patient to incur such expense his own bill will not be paid, therefore he writes a letter to a consulting surgeon and asks him to use his influence so that the patient may be admitted in the hospital. As the operating surgeons depend for their paying and better-class patients on the good will of the general practitioners they do not complain. If, however, one hospital more careful and scrupulous than is usually the case refuses to take the patient in, some other hospital will be less rigorous and then the general practitioner most inconsistently complains that there are too many hospitals. It is just because there are so many hospitals and because their rules of admission are somewhat lax that the general practitioner is able to utilise them to get himself out of a difficulty with regard to his patients and to prevent any of the money they are able to pay for medical advice going to anyone else but himself. At the hospital, where my informant acts as operating and visiting surgeon, the managing committee met to discuss the abolition of the recommendation system. Some general practitioners had objected that it made them lose time to obtain recommendations for those of their patients whom they wished to send to the hospital. They urged that if they sent their patients with a card that should suffice. The committee, however, objected that the hospital would then become a mere dumping ground for old chronic cases and non-paying patients.

Calling subsequently on one of the visiting physicians of the Children's Hospital he declared that he had no knowledge of cases where general practitioners had sent patients to hospitals who could afford to pay for treatment in a private home. As a physician this grievance had not come under his notice, and it was much more likely to affect operating surgeons. A gentleman did, however, come to the hospital whom he knew to be in receipt of £5000 a year. He reproached this gentleman for seeking to abuse a charity, and the gentleman in question became one of his private patients, often paying five guinea fees. Undoubtedly there was considerable abuse among the out-patients, but this was rare among the in-patients. To his infinite regret it seemed to him that the profession, as a whole, was losing tone. Many medical men had introduced a shoppy element into their professional behaviour and practised "undercutting" and invented "tricks of trade." Thus in this very agitation against hospital abuse a selfish and sordid tone, he considered, prevailed that was damaging to the cause and humiliating to the profession. It seemed as if medical men were only concerned about their pockets. Let those who aimed only at a money result stick to business or trade and not invade the ranks of an honourable profession, which should strive after a much higher ideal. The public were interested in this matter of hospital abuse, and it was their interests rather than the sordid motives of medical men that should be pressed forward. Doubtless many persons who could afford to pay for medical advice went to the hospital. This story had been told, and told pretty often; but how many people were there who could not afford to pay for medical advice, and yet, by dint of many and painful sacrifices, did pay rather than go to the hospital? The general practitioner profited perhaps as much from this class as he lost from the other and meaner class, though very little was heard about it. The general practitioner complained of the hospitals, of the consultants, and of the specialists; but what did he do when he fell ill himself or any member of his family fell ill? Did he call in a general practitioner or trust to his own treatment? On the contrary, and often only for trifling ailments, he sent for the consultant or specialist. In protesting against every institution that deprived him of a patient that is to say, of a fee, the general practitioner was too apt to forget that his patient's welfare had also to be considered. It was the shoppy element in the hospitals, among the consultants, the specialists, and the general practitioners that constituted the foundation of the present grievances. We had to drive the spirit of commercialism away and revive the higher professional ideals, treat every patient as we should wish to be treated ourselves if we were patients, and not allow sordid motives to exercise any influence. There might then be less complaints about patients going to consultants, specialists, or even hospitals. Thus the visiting physician to the Children's Hospital. Of course, the general practitioner may retort that when a medical man has reached the highest grades of the profession it is easy to indulge in these fine sentiments. Sitting in a luxurious consulting-room, awaiting, with the certainty of realisation, the receipt of numerous guinea and of occasional five-guinea fees, it involves no great effort or trying self-sacrifice to proclaim the above altruistic principles. Besides, though undoubtedly beautiful and true, it so happens that this little sermon promotes, under the mantle of moral teaching, the financial interests of the consultant.

Other consultants on whom I called likewise put their own case and that of the hospitals very forcibly before me and were unsparing in their criticisms of the general practitioner. One of the most prominent operating surgeons of Manchester declared that he was convinced that many general practitioners drove their patients to the hospitals by objecting to call in a consultant. An anxious patient might suggest the advisability of such a course, but the general practitioner would angrily inquire whether the patient could afford to pay two guineas. The patient, in despair, went to the hospital, where he obtained advice from the consultant for nothing. Many patients required to be under the temporary care of a consultant, but could not afford to pay a guinea a visit. If, to meet these cases, the consultant reduced his fee to half a guinea the general practitioners immediately organised a boycott against the consultant. So great was the antagonism between the general practitioner and the consultant that the former not unfrequently allowed his patients to continue suffering indefinitely rather than allow them to go to a consultant. Not long ago a Manchester general practitioner complained because a consultant had in a special case taken a half-guinea fee. Practitioners also complained that the address of specialists was given to patients by the secretaries or clerks of hospitals. Patients who can afford to pay come to the hospitals to obtain these addresses because, it is alleged, their ordinary medical attendant is so much opposed to seeking a consultant's advice that he will not himself give the address. It may happen that persons living in neighbouring towns are under the care of their family medical man for several months and no progress is made. Nevertheless, the local practitioner sneers at the idea of a consultation and the patient is afraid to ask his medical man or the name and address of a consultant. Consequently when the patient's patience is exhausted he takes the train and goes to Manchester. On arriving he asks the way to the infirmary. He has no intention to defraud that charitable institution, but knows that there he will obtain the best advice. The secretary inquires as to the applicant's wage limit and expostulates when he finds that he has ample means; but the applicant replies that he came fully prepared to pay, all he wanted was the best advice. The secretary then gives the addresses of the members of the hospital staff. The very stubbornness of the general practitioner in refusing extra help or a consultation causes the patient to find out that this is necessary. Then the patient comes and is treated either at the hospital or, if he can afford to pay, as a private patient of a consultant. On returning to his home he naturally spreads the news of

his recovery and the tendency to resort to specialists or consultants is thus becoming more and more general. The great difficulty is with that numerous class of patients who can afford to pay but cannot pay guinea fees. There it is that hospital abuse arises. They are dissatisfied with the general practitioner and cannot afford to go to the consultant, yet the latter dare not reduce his guinea fee to meet the financial position of this numerous class. The consulting surgeon with whom I was discussing this matter expressed his conviction that he could triple his income if, during two days in the week, he were able to give consultations for 5*s.* fees and this would prevent much of the hospital abuse. It was his conviction that many patients died prematurely because they could not afford the guinea fee for the consultant and did not like to go to the hospital. In his practice he had seen many cases, notably of cancer, which had come to him only in the last extremity when it was too late to do any good. Such patients died prematurely because they could afford to pay 3*s.* 6*d.* fees. Had they been poorer they would have come to the hospital sooner and their lives would have been saved or at least prolonged. Hospital abuse was not so grave as the general practitioners made out; but it was the old story of the two men who quarrelled as to who should milk the cow. While the general practitioner and the consultant were disputing as to what should be done with regard to the patient who could not afford a guinea, but would gladly give 5*s.*, the patient took himself off to the hospital, with the result that both general practitioner and consultant lost their fees.

In almost the same terms as those employed by the consulting physician I had previously seen, the consulting surgeon I was now interviewing laughingly remarked that when the general practitioner's wife was ill telegrams came pouring down upon the specialists. They were to take the train, they were to come at once; and, after all, as often as not, it turned out to be quite a trivial case. In a more earnest tone he lamented that general practitioners too often failed to treat their patients as they would like to be treated themselves. Rows and commotions arose because patients were not always advised to their best interests. If a general practitioner, after two or three weeks' attendance on a special disease, found that there was no improvement the patient should be sent to the hospital with a note from his medical attendant demanding not general treatment, but advice. At the same time, if this were rendered too easy patients who could afford to pay guinea fees for the same advice would be sent to the hospital, and this would not be fair to the consultant. There was no disguising the truth, he said, that the ordinary medical qualifications did not suffice for special cases. This was best proved by the fact that general practitioners, when they were themselves afflicted, resorted to specialists. After all, patients were not made for the medical man, but the medical man was made for the patients. The best medical man was he who freely transferred his own patients to better men, if necessary. It was preposterous for a medical man to imagine that he was competent to do everything. But in speaking of better men it did not follow that the consultant was superior to the general practitioner. My informant, though considered one of the most prominent consulting and operating surgeons of the town, frankly admitted that he would be quite incapable of doing a general practitioner's work. He had not put up a fracture for the last eighteen years or more and would not like to be called upon to reduce a dislocation. He would consider it little short of a crime if he attempted to remove a cataract. Many of his patients had sufficient confidence to let him attempt any sort of operation, but thought none the worse of him when he refused a fifty-guinea fee and sent them to a better man. The public were not so ignorant and could understand that a man who was skilled in removing an ovarian tumour might be less successful in operating upon the eye. At the hospital with which he was connected there was at the present moment a woman who was married and the mother of children. The income of the family amounted to £5 a week. The operation in this case would cost £100. The general practitioner who attended this family had not the special skill necessary to perform this operation, and a family with £5 a week could not be expected to pay a £100 fee to a consultant. It was no use complaining because this woman had come to the hospital. Patients with private means did not generally come to the hospital till they had tried other means. After all, inquiry should be made of the public as to what the patients themselves have to say and how they explain their conduct. It was no pleasant matter to pay even half-crown fees throughout a long and wearisome illness and feel that there were at the hospital specialists who would, in all probability, effect a cure in a much shorter time.

Such were some of the arguments adduced by consultants and members of the staffs of the Manchester hospitals. It now remains to be seen what measures are taken at the hospitals to prevent abuse and what the general practitioners have to say on the subject. I have given the views of the consultants first, but no one must prejudge the case. Before my readers make up their minds on the subject of hospital abuse at Manchester they must hear the other side.

(To be continued.)

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Sanitary Inspectors' Association.

A MEETING of the Lancashire and Cheshire Branch of the Sanitary Inspectors' Association was held on Saturday, Dec. 19th, at the Manchester Technical School. The members first inspected a number of technical appliances lent by the school authorities and were afterwards addressed by Mr. J. Ratcliffe, chief lecturer on sanitary science at the Manchester Technical School, on a Sanitary Inspector's Duty with regard to House and Drainage Inspection. He said that some authorities, under the impression that no skill was required, "were in the habit of choosing for such places policemen, railway porters, unsuccessful tradesmen, or men who had failed in every other walk of life." He said that the sanitary inspector was the guardian of the public health, and he thought had reform in this matter in his own hand. Above all things, he must have a good knowledge of the scientific portion of his work and be ready to put it in practice. "These were the men who would be dreaded by the jerry-builder and the owner of old-fashioned property." After impressing on his audience the necessity of a close acquaintance with natural laws he explained the main principles of sanitation, illustrating his subject with lantern views and diagrams. It is probably true, as the lecturer thought, that the sanitary inspector is much undervalued by the general public whom he serves, which is not to be wondered at if the authorities appoint ignorant, unskilled men. Considering the importance of his work, and the fact that much of it is concerned with what is usually out of sight, it is necessary that there should be not only the requisite knowledge but character and high principle. Manchester, it is only fair to say, does not come in the category of "certain authorities," for great care is taken to obtain the services of efficient, trustworthy men.

Manchester Geological Society.

On the 18th inst. an interesting paper by Messrs. Barnes and Holroyd was read at a meeting of the Manchester Geological Society on Some Effects of High Pressure on Decomposing Vegetable Matter. The experiments were first suggested by Wheelton Hind of Stoke-on-Trent. The first was made with freshly cut moist peat, which was placed in an iron cylinder 3 in. deep and 3 in. in diameter, the wall being 2½ in. thick. An iron ram was placed on it having a diameter just sufficient to allow of its passing smoothly into the cell. Hydraulic pressure was applied until it had reached about one ton to the square inch, when the iron cell burst, owing probably to the incompressibility of the water contained in the peat. The broken cell was strengthened and another attempt was made on thoroughly desiccated peat, which was subjected to a pressure of twelve tons to the square inch, and at this it was allowed to remain for twelve or fourteen hours. When the peat was withdrawn it had decreased to about one-fifth of its original bulk, and at the periphery, where it had been in contact with the interior of the cylinder, it had a shining black appearance very much resembling coal. "When broken it showed that in a great measure the fibrous vegetable structure was much reduced or destroyed and the mass had a distinctly lignitic appearance." Its specific gravity was found by calculation to be 1·5, that of coal being from 1·2 to 1·8. In another experiment dried autumn leaves of ash, sycamore, oak, elm,

and hawthorn were exposed to a pressure of 20 tons to the square inch. The margin of the compressed mass presented the same coaly appearance, with shining particles on the upper and lower surfaces, and its specific gravity was 1·42. An experiment with sycamore leaves gave similar results. In another experiment with peat, at a still greater pressure, the degree of mineralisation at the point of contact with the iron was still greater. When burnt the compressed peat behaved very much in the same way as coal. It did not ignite at once, "but after a short time burst into flame, emitting streams of volatile and inflammable gas." The deduction from the various experiments was that pressure must have played a very important part in the changes from vegetable decomposing matter to mineralised coal, which, perhaps, scarcely needed showing; but, nevertheless, the demonstration was most interesting.

Manchester and Salford Sick Poor and Private Nursing Institution.

The annual meeting of the above institution was held on Friday afternoon in the Lord Mayor's parlour in the Manchester town hall. The report states that the object of the institution was "to provide throughout the length and breadth of the city wherever sickness and poverty were found together the careful ministrations of the district nurse." There are 25 thoroughly trained and efficient private nurses and 47 district nurses. During the year 8233 patients had been attended and 210,500 visits paid by the nurses. But, as we hear so often, "the general financial state of the institution gave rise to feelings of anxiety," for during the year there had been a considerable excess of expenditure over income, and but for a legacy of £1000 from the late Mr. Berry, about £400 of which "had been absorbed in meeting the deficiency," and, as Mr. W. Mather said, "without the bequests received, they would not have been able to go on." He suggested that those who employed the private nurses should contribute to the general fund "in however small a degree." During the year 1200 home patients of the various hospitals had been tended by the district nurses, who had paid 31,000 visits "under the direction of the hospital medical staffs." Others had been nursed for the medical officers of the provident dispensaries or for private practitioners. Surely more liberal support should be given to this useful society.

The Proposed Rebuilding of the Royal Infirmary: Result of the Poll of Trustees.

The votes of the trustees of the Manchester Royal Infirmary on the question of a rebuilding and extension on the site in Piccadilly, in accordance with the plan submitted by the Grand Committee, were counted on Wednesday, Dec. 23rd, 1896. The number of voting papers issued was 1349, and of these 853 were returned. The counting took place yesterday morning, Sir Frank Forbes Adam and Mr. E. S. Heywood being scrutineers representing those in favour of the motion, and Sir John Harwood and the town clerk (Mr. W. H. Talbot) acting in the same capacity for those against it. The result of the poll was declared as follows: For the motion that the infirmary should be rebuilt on its present site, 449; against, 403. The result will be submitted to a special meeting of trustees to be held in the middle of January.

Dec. 24th, 1896.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Christmas at the Hospitals.

THE usual festivities of the season lacked no enthusiasm this year in the efforts to make the time appreciated by the inmates of the various hospitals. At the General Hospital an attraction was secured by the presence of Mrs. Chamberlain, who kindly gave away the toys from a huge Christmas tree, to the delight of the younger inmates. The older ones were treated to songs and music by various members of the staff, and the occasion was an enjoyable one in every respect. At the Children's Hospital Father Christmas distributed toys and gifts to a number of children amid much excitement and pleasure. An amusing incident in connexion with the Jaffray Hospital shows that sometimes even the ever watchful press slumbers. That branch of the General Hospital has been closed for some months for cleaning and repairs and still remains untenanted, yet in the descriptive narrative of a local paper the inmates were regaled with roast beef and plum puddings and spent a happy and enjoyable Christmas-time. Truly imagination plays a prominent part in the minds of some reporters, excusable, perhaps, by the good intentions of the season.

The Queen's Hospital.

The resignation of Mr. Wilders, one of the surgeons of this institution has been received with much regret. For nearly forty years Mr. Wilders has been connected with the hospital, first as assistant house surgeon and for twenty-eight years as senior officer. In the words of the chairman of the hospital: "During that time he has served the hospital with fidelity and zeal, ever working in harmony with his professional and lay colleagues." The grateful thanks of the authorities were accorded to him unanimously with the hope that his long illness would eventuate in recovery and that his life would long be spared.

Neglect of Children.

Too common an occurrence in the midst of our boasted civilisation is the deplorable neglect of the youngest branches of the community. The Society for the Prevention of Cruelty to Children does a good work in the city by occasionally prosecuting in the most flagrant cases. An instance lately occurred in which a mother who is stated to have borne sixteen children in nineteen years grossly abused the attributes of maternity. Four of the children were insured for an aggregate sum of £22 10*s*. One of them died after great neglect. The mother, of drunken habits, was seldom in a fit state to attend to the wants of the youngest; and in a deplorable condition of disease and dirt one of them died. The magistrates marked their disapproval of her conduct by a term of three months' imprisonment, during which period, no doubt, time for reflection and reformation will be afforded to this unfortunate victim of the great destroyer drink.

Dec. 29th, 1896.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Outbreak of Swine Fever at Rainhill.

SWINE FEVER has broken out at the County Asylum at Rainhill. A new order with regard to the sale of swine comes into operation on Jan. 1st, which will have the effect of preventing the public sales of fat swine without permission, and for which licences will have to be obtained. Also, where swine have been on premises twenty-eight days a sale of store swine will not be permitted.

Liverpool Medical Institution.

The following nominations have been made by the Council of this society, subject to confirmation at the annual meeting, which will be held on Jan. 14th:—Vice-Presidents: Dr. A. C. E. Harris and Dr. Karl Grossmann. Hon. Treasurer: Dr. James Armstrong. Hon. Librarian: Dr. T. R. Bradshaw. Dr. Harris's period of office as President of the Birkenhead Medical Society has recently terminated, a post which he filled in a highly creditable manner. The President of the Liverpool Medical Institution (Dr. Caton) will deliver his inaugural address on Jan. 7th. The subject of the address will be the Results of Recent Excavations at Epidaurus and Athens bearing on Medical Treatment as carried out in the Temples of Asclepius, with lantern illustrations. The presidential address will be followed by a smoking concert.

Liverpool Royal Infirmary.

It is an open secret that at the approaching annual meeting of the trustees of the Royal Infirmary a vacancy on the senior honorary staff will be declared.

Christmas at the Liverpool Hospitals.

At the Royal Infirmary the wards and the chapel were tastefully decorated with evergreens, sent by kind friends for the occasion. Roast beef and plum pudding were served at mid-day to the patients in the wards; tobacco was also distributed to smokers. Presents of fruit, plants, and toys, besides articles of clothing, have been received from friends of the institution. On Christmas evening, carols were sung in each of the wards under the direction of Dr. Livsey, honorary organist to the chapel, who accompanied by means of a harmonium. The wards were visited during the day by

several members of the Committee and their friends. At the Northern, Royal Southern, Children's and Workhouse Hospitals the festivities were on similar lines.

Dec. 29th, 1896.

WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENT.)

Memorial to the late Mr. G. E. Alford of Weston-super-Mare.

THE formal opening of the "Alford Memorial Ward," furnished with funds raised by friends and patients of the late Mr. G. E. Alford, M.R.C.S. Eng., L.R.C.P. Lond., who had been for several years an honorary surgeon to the institution, took place on Dec. 23rd. The ward contains an excellent portrait of Mr. Alford and will shortly be provided with a memorial tablet and with a stained window depicting St. Luke, the physician. There was a large attendance, and the President (Mr. T. Mullens, J.P.) in declaring the ward open said that Mr. Alford was a gentleman who had done noble work in the improving of the hospital, and it had been thought that the best way of testifying their appreciation of his efforts would be in the forming of a memorial ward in the hospital in which he had shown so much interest.

The New Hospital for Newport (Mon.).

Up to the present the promises of support to the new hospital at Newport amount to about £8000, and this, in addition to the gift of Dr. A. Garrod Thomas, makes altogether about £13,000.

Isolation Hospitals in Glamorganshire.

At the meeting of the Glamorganshire County Council the solation hospitals sub-committee recommended that notice should be given to the Oystermouth, Gower, Briton Ferry, Caerphilly, Glyncornwg, Pontypridd, and Maesteg District Councils that they must adopt definite plans for isolation hospital accommodation by March 1st, or the council will proceed to make compulsory orders.

The Preservation of Dartmoor.

At a meeting of the Plymouth borough council, held on Dec. 14th, the question of the acquisition of Dartmoor by the county of Devon in order to prevent further encroachments was discussed. This scheme, which was submitted by the Dartmoor Preservation Association, was unanimously approved of, and the council pledged itself to bear its fair share of the cost of purchasing 130,000 acres of Dartmoor from the Duchy of Cornwall, provided that the county authorities have power to preserve all objects of archæological and antiquarian interest and the indigenous plants and animals. The other Devonshire authorities have also promised their support to the scheme.

Death of Mr. G. F. Schacht of Clifton.

Mr. George Frederick Schacht, the well-known chemist of Clifton, died suddenly on Dec. 26th. Mr. Schacht, who was seventy-three years of age, had been for twenty-five years a member of the council of the Pharmaceutical Society, and on his retirement from that office last autumn was presented with an address acknowledging the useful work he had done for the society. He had been vice-chairman of the society and also a member of the examining body, pharmaceutical education being a matter in which he was greatly interested. He was honorary treasurer of Bristol University College, and at the recent annual meeting of the governors he spoke highly of the chemical work done at that institution.

Dec. 29th, 1896.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

University of Edinburgh.

THE following are the numbers of the students who attended the several classes of systematic lectures in the Faculty of Medicine in Edinburgh University during winter and summer sessions, beginning in October, 1895, and ending in July, 1896: Chemistry, 281; botany, 228; zoology, 215; physics, 267; anatomy, 213; physiology, 443; surgery, 213; materia medica, 246; practice of physic, 230; midwifery, 178; medical jurisprudence, 174; mental diseases, 99; and ophthalmic surgery, 55.

Clinical Demonstrations to Medical Practitioners.

The physicians and surgeons of the Glasgow Royal Infirmary, with the consent of the managers, have arranged to give during the winter and summer sessions weekly demonstrations of cases in the wards, open to all members of the profession who care to attend. It is proposed that every Friday afternoon one of the physicians or one of the surgeons shall be responsible for the demonstration, and the members of the staff have unanimously assented to the arrangements. There can be little doubt that these demonstrations will be most valuable to practitioners, giving them opportunities to renew their acquaintance with hospital methods and to become practically familiar with the more recent improvements in diagnosis and treatment. Both the managers and the staff are to be congratulated on a departure which indicates a keen perception of the duties and opportunities attached to those responsible for the policy of the hospitals as centres for clinical instruction. And it can only be for the public benefit that the practitioner shall be encouraged to continue to some extent his hospital attendance even after entering on private practice. The first demonstration is to be given by Mr. Henry E. Clark, senior surgeon to the infirmary, on Friday afternoon, Jan. 8th, at four o'clock.

Glasgow University.

The register of the General Council for the year 1897 has now been made up. It shows the addition of 189 new members, whilst 106 names have been removed, making a net gain of 83. The present total is 5406. The Christmas holidays commenced on Dec. 21st, and are to be continued until Jan. 5th, when the classes will be resumed.

Police Appointment.

The sub-committee of the Corporation appointed to deal with the vacancy in the casualty surgeonship of the Northern police district, Glasgow, have decided to recommend the election of Mr. R. Bain Lothian, M.B., C.M. Glasg. The salary is £50 per annum and there were seven other candidates.

New Fever Hospital for Stirling County.

The new hospital erected near Camelon by the Eastern District Committee of the County Council was opened on Dec. 22nd Mr. Geo. Ure of Wheatlands presiding at the formal ceremony. The cost of the hospital has been £7500. It is arranged in four blocks and includes, in addition to the usual accommodation, observation wards for the admission of doubtful and suspicious cases. After the opening ceremony the committee entertained the visitors to luncheon.

Professor Gairdner on Samaritan Hospitals.

The recent institution in Glasgow of a hospital for diseases of women, calling itself the "Samaritan" Hospital, has, it appears, led to some confusion in the minds of the benevolent in consequence of the fact that for many years there has existed in connexion with the Western Infirmary a Samaritan society, having for its object the supply of clothing and other necessaries to patients on leaving the infirmary. To prevent misconception the President of the Samaritan Society (Mrs. Berry) wrote to the newspapers explaining the position. This led to some correspondence, amidst which appeared a letter from Professor Gairdner containing the following passages: "Without prejudice as regards any particular institution in Glasgow or elsewhere which calls itself a 'Samaritan' hospital allow me to ask ..... if there is anywhere any good authority in Scripture or out of it, even the smallest grain of common sense or etymological propriety, in a special hospital for women appropriating to itself distinctively the name and credit of the 'Good Samaritan'—for I suppose it is the Good Samaritan and not the Woman of Samaria or the ungenial and bigoted type that we read of, and to which the Good Samaritan was a brilliant exception, that is here in question? The Samaritan Society of the Western Infirmary does well to be so called because its work is purely good Samaritan work on the strictest lines of the great original in the parable and not limited in its motive by any consideration of age and sex and condition. But when one or more able and enterprising gynæcologists contrive, with much canvassing, bazaars, &c., to have a special hospital erected for the diseases of women, we may even approve their object and are not to be held as in any way assailing their enterprise if we ask, What has the Good Samaritan, or any other Samaritan that we know about, specially and distinctively to do with gynæcology? ..... The Woman of Samaria, we are told, had five

husbands; but notwithstanding this undue allowance of male support and protection there is not a word or a hint of her having ever been in the hands of a 'gynæcologist.' ..... It will be difficult, I suspect, to turn the Woman of Samaria to the account of gynæcology. Whence, then, the name? The promoters of 'Samaritan' hospitals owe an explanation to the public on this subject."

Aberdeen University.

On Dec. 28th there was presented to Aberdeen University Court the portrait (painted by Sir George Reid, P.R.S.A.) of Mr. David Rennet, LL.D., a successful private teacher of mathematics and natural physiology in Aberdeen. At the same time a replica was presented to Dr. Rennet. Subscriptions came largely from Dr. Rennet's old pupils, and the balance of the fund will be handed to the University Court for the foundation of a gold medal, to be awarded annually for distinction in some branch of mathematical study.

Aberdeen Hospital for Incurables.

During 1896 16 patients were admitted to Morningfield Hospital, 12 died, and 3 were discharged, leaving 67 in the institution at the close of the year. The ordinary expenditure was £1727, being £383 11*s.* 3*d.* above the ordinary income. Legacies produced £387 14*s.* 10*d.*, leaving a small balance in hand. Part of the hospital fees duty has been redeemed by a payment of £490 out of capital.

Aberdeen Royal Infirmary.

In reminding the citizens that Sunday, Jan. 3rd, is Hospital Sunday in Aberdeen, the directors state that the expenditure for the current year may be set down as £8000 and that the outlay grows with the increase of buildings. When the new medical block is opened in May next, it is stated, the infirmary will, as regards comfort and general equipment for the treatment of the sick and injured, be one of the finest hospitals in the United Kingdom. At Jan. 1st last 161 patients remained in the hospital. During this year to Dec. 23rd 1929 patients were admitted, making a total of 2090, of whom 979 recovered, 603 had improved, 196 had been discharged as unfit, at desire, &c.; 152 had died, and 160 remained in the infirmary. In addition 5399 casual cases had been treated. Dr. P. Blaikie Smith has, owing to the state of his health, resigned his post as one of theordinary physicians and has been appointed a consulting physician.

Dec. 30th, 1896.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Memorial Statue of the late Surgeon-Major Parke.

THE event of last week in Dublin was the ceremony of the unveiling of the statue of the late Surgeon-Major Parke, the companion and friend of Stanley in Darkest Africa. The statue, which is of bronze, is placed on a stone pediment in the Leinster Lawn, an admirable site which contains already a handsome bronze allegorical group erected in memory of the late Prince Consort, and a statue of the late William Dungan, who founded the Irish Industrial Exhibition of 1853. There was a distinguished and representative assembly present, the military and medical professions being, of course, well represented. After Dr. Wheeler, as one of the former teachers of Surgeon-Major Parke, had delivered a brief panegyric of the deceased, Field-Marshal Lord Roberts, the Commander-in-Chief in Ireland, said that although he had not had the honour of knowing the late Surgeon-Major Parke, he had felt a great admiration for that officer's character, and was proud to remember that he belonged to the Army Medical Department. The statue, which is an admirable likeness, was then unveiled and exhibited to the view of a large and distinguished audience.

Death of Sir George Owens, M.D.

Sir George Owens, M.D. Glasg., died at his residence in Dublin upon Dec. 29th. He took the degree of M.D. at Glasgow University in 1850. In 1876 he was Lord Mayor of Dublin and was knighted during his year of office. In 1881 he filled the office of High Sheriff.

The Richmond Lunatic Asylum.

The epidemic of beri-beri in this institution does not seem to have undergone much abatement. Mr. O'Conor Donelan, the acting resident medical superintendent, reported at the last meeting of the board of governors that the number of cases had reached 113, but that there was a decline in the number of fresh seizures during the last few weeks. Arrangements are at last being made to remedy the overcrowded state of the asylum, and block No. 1 of the temporary buildings at Portrane is now finished and ready for occupation. The cost of this, with the two other blocks now in course of erection, has been estimated at £10,900. Dr. Courtenay, inspector of the Board of Control, suggested for the consideration of the board of governors that it would be advisable, instead of concrete houses, to build cottages which might, after the construction of the asylum at Portrane, be used as residences for the attendants. A patient of the Richmond Asylum named Cluskey was recently—Dec. 21st—returned for trial on a charge of having murdered another inmate by striking him on the head with the iron grating of a sewer trap. The injured man was brought to Jervis-street Hospital, where it became necessary to trephine his skull, after which he improved so much that he was able to return to the asylum. An abscess ultimately formed in his brain and proved fatal.

Mercer's Hospital.

The board of governors of this hospital, as will be remembered, adopted some months ago the very unusual course of requesting the resignation of all the members of their medical staff. It is said that one medical man, fearing that he would not be re-elected, refused to obey the request and legal proceedings seemed at one time imminent. It is now, however, stated that a conference between the board of governors and the medical staff has been arranged to take place about the middle of January.

The New Belfast Hospital.

Dr. W. A. McKeown, who is surgeon to the Ulster Eye, Ear, and Throat Hospital, at the annual meeting of that institution, spoke of the great advantage the new general hospital would be to the Belfast Medical School, and quoted some statistics of great importance as coming from one who is an original senator of the Royal University of Ireland and a member of the Medical Committee of that body. The four institutions in Ireland specially connected with the Royal University were Queen's College, Belfast, Queen's College, Cork, Queen's College, Galway, and the Catholic University School of Medicine, Dublin. From an official return he found that the respective numbers of medical students sent up from these institutions in 1895 were as follows:—Queen's College, Belfast, 205; Queen's College, Cork, 113; Queen's College, Galway, 44; and the Catholic University, 93; so that the Belfast School of Medicine supplied nearly as many as the other three schools put together—205, as against 250. Belfast was, indeed, as regards these institutions, the predominant partner, and hence the necessity for good facilities for training the students. The 205 students do not, however, by any means represent the full strength of the Belfast Medical School, as many others went to the licensing bodies in Scotland. These figures also demonstrate, I may add, another fact that Belfast is not at all fairly represented on the examining boards of the Royal University. To give an example, at the M.B. board of the Royal University there are twelve examiners, and of these only two come from the Belfast School of Medicine, which, as Dr. McKeown points out, sends nearly as many medical students as the other three schools put together.

Prevention of the Spread of Infectious Diseases.

At the Londonderry Petty Sessions, on Dec. 28th, a military lieutenant residing outside Ebrington Barracks was summoned by the executive sanitary officer and fined 2*s.* 6*d.* and £1 13*s.* 8*d.* costs for allowing his son to attend school, contrary to the provisions of the Public Health Act, within a fortnight of the date on which it was certified he had scarlet fever.

Health of Belfast.

At the present time there is a great deal of illness in Belfast, especially scarlet fever and influenza. Some of the public schools have had to be closed owing to the former, and the latter is very widespread, many children being attacked in this epidemic. In the present outbreak of influenza throat complications are common and occasional rashes (making the diagnosis difficult as between influenza and scarlet fever)

are seen, but no desquamation follows, and in all cases of the disease there is the well-marked after-depression.

Ulster Eye, Ear, and Throat Hospital.

At the annual meeting of this hospital, held on Dec. 22nd, it was reported that during the year there were 1493 extern and 235 intern patients. The total receipts of the hospital from all sources were £610 10*s.* 10*d.* and the disbursements £609 17*s.* 11*d.*

Dec. 31st, 1896.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The late Emile Du Bois-Reymond.

ON Dec. 26th the University of Berlin lost one of its oldest and most valued members, Emile du Bois-Reymond, Ordinary Professor of Physiology, Director of the Physiological Institute, and Honorary Secretary of the Royal Academy of Sciences. It was by the labours of Helmholtz, Virchow, and Du Bois-Reymond that the claim of medical men to have their special subject reckoned among the sciences was first vindicated in a conclusive and satisfactory manner, and of these three, to whom we owe so much, Professor Virchow is now the sole survivor. The sorrowful event was not unexpected either by the friends of the deceased or his students, as he had for a considerable time been suffering from cardiac failure, which eventually compelled him to cease lecturing last summer, but he hoped to be able to resume his work, and therefore did not seek to be relieved from the duties of his appointment. The principal points in his personal history, considered apart from his scientific investigations, may be stated in a few lines. His father was a native of the canton of Neufchâtel in Switzerland, but came to reside in Berlin before the birth of his son, which took place in that city in 1818. Du Bois-Reymond spent almost the whole of his life in Berlin. His medical curriculum occupied him from 1837 to 1843. He became assistant at the Anatomical Institute in 1844, *privat-docent* in 1846, and extraordinary professor in 1856; in 1858 he was promoted to be ordinary professor. His name is, and always will be, associated with one branch of physiological observation and research—namely, the special physiology of muscles and nerves, a field which before his time was almost unexplored. His attention was first directed to these questions in 1841, when Professor Johannes Müller, observing the bent of his mind towards original inquiry, suggested to him a critical examination of the observations made by Matteucci on the electrical phenomena presented by animals. The advice was immediately followed, and the researches then commenced were destined to occupy him during the remainder of his life. So engrossed did he become in these pursuits that, as he himself used to say, frogs and the multiplicator for studying electric currents were his only companions during many years. His first publications were too aphoristic to find favour with the scientific world, but his "Researches on Animal Electricity," which appeared in 1848 and 1849, brought him at once to the front. His discovery of the existence of electric phenomena in connexion with muscles and nerves inaugurated a long series of animated discussions, which are occasionally revived even now. His great celebrity, however, was mainly due to his having been one of the foremost protagonists in the struggle between materialism and vitalism. In the beginning of his career vitalism was still a recognised theory in natural science, but jointly with the brothers Weber, Helmholtz, Meyer, and other eminent men he was one of the first to maintain that all the processes of life depend exclusively on those of physics and chemistry. This he held to be an established fact, not admitting of any doubt or question, and when not long ago a modification of the old vitalistic theory reappeared under the name of Neo-vitalism, suggested by Professor Rindfleisch and others, he at once took the field against what he deemed to be false opinions. One of his last communications to the Royal Academy of Sciences was a reply to an address delivered by Professor Rindfleisch at Frankfort before the Association of German naturalists and medical men, but he did not go so far as to imagine that all problems must be regarded from the point of view of natural science exclusively. His essays on the Limits of Knowledge and on the Seven Mysteries of the World, in which he conscientiously made the avowal "Ignorabimus," excited the hostility of the more "advanced" group of thinkers, especially those of the Jena school. Du Bois-Reymond was possessed of great natural gifts both as a teacher and a speaker. His hearers were charmed both by the easy clearness of his style and the finished polish of his phrasing—a combination of qualities not always found in a German professor, and perhaps partly attributable to his French origin. This serves to explain the well-known fact that not only were his professorial lectures on physiology most regularly attended by the students from the beginning to the end of the session, but his popular addresses on topics of general interest, delivered once a week in the *auditorium maximum* of the University, always drew large audiences including both sexes and all classes of society. Physiological teaching and research in Berlin are indebted to him for the providing of an establishment worthy of the science so important as one of the foundations of medical knowledge. Visitors to the Quartier Latin of Berlin will be struck by the palatial appearance of the new Physiological Institute, built and fitted in precise accordance with his ideas and provided with every requisite. This is the place where Du Bois-Reymond and his pupils, the late Professor Baumann (not long since deceased), Dr. Sachs, Professor Fritsch, Professor Kronacker, Professor Goltz, and many others, have contributed so much to the development of physiology and the progress of natural science.

Dec. 29th, 1896.

ROME.

(FROM OUR OWN CORRESPONDENT.)

The Brain of a Brigand.

THE literary "hit" of the month is Professor Cesare Lombroso's article in the *Nuova Antologia* on the brain of Tiburzi, the brigand chief who for nearly twenty-five years levied contributions on Central Italy with a boldness and success explained only by his having been no merely vulgar malefactor, but in his way a hero of romance, a "rectifier of the financial frontier" between rich and poor, and as far removed from meanness as he was superior to moral scruple. The whole countryside was devoted to him: no informant could be found to guide the agents of the law; no jury could be "packed" even if he ever fell into the hands of "justice." At last he met a brigand's death in open conflict with the *carabinieri*, and at Professor Lombroso's request his brain was preserved and duly subjected to anthropological analysis. It is Professor Lombroso's report and commentary on this that give the article in the *Nuova Antologia* its fascinating interest, to say nothing of the fact that the occasion proved a welcome one for him to "put himself right" with the Russian and German critics who at the last Anthropological Congress accused him of attaching to physical conformation a significance properly shared with early associations and moral environment. Tiburzi's brain, he admits, presented nothing abnormal; every organ was duly developed, the hands especially being beautifully proportioned, while, as to his physiognomy, it strongly resembled that of one of the ablest and mildest of recent Italian statesmen, his Excellency Cesare Correnti, some time Minister of Public Instruction! This finding seems awkward for the upholder of the "uomo delinquente" or "criminel-né"; but Professor Lombroso is quite equal to the dilemma. Unable to bring home to the deceased brigand any transmitted taint, his father and mother having been "brave persone," he elevates him into a social enthusiast impressed with the unequal distribution of fortune's favours—one who in an age more propitious for such types would have rivalled a Sforza, a Piccinino, or a Medici delle Bande Nere. As it was he pursued his *métier* in his little world with an intelligence, an administrative—nay strategic—ability, a temperance, and a faculty of inhibition quite foreign to the "criminel-né," qualities that relegate him to a category for which Professor Lombroso has to coin a term—the "criminaloid"—a man, that is to say, who from motives not bad in themselves (nay, to some extent laudable) becomes a social pariah and, in legal technicality, an outlaw. The whole article has even more interest for the romancist than for the professional student, and may be recommended for artistic purposes to a man of letters who combines both capacities—for instance, Dr. Conan Doyle.

Precautions against the Pestis Bubonica.

Dr. Baccelli presided at an "urgency meeting" of the Consiglio Superiore di Sanità held the other day to approve prophylactic measures against the importation from East Indian ports of the pestis bubonica. All the members residing in Rome, to the number of fourteen, were in attendance, and the reporters were Signor Comandù, member of the Chamber of Deputies, and Dr. Panizza. After due consideration of the precautions taken by the Minister of the Interior on the first announcement of the plague from Bombay the council had to weigh objections advanced in the interests of commerce, which, it was represented, might be compromised by the rigid enforcement of the said precautions. The conclusion come to was a unanimous approval of what the Minister of the Interior had already done, and seeing that the plague in India shows small sign of abating the council further empowered the two reporters and the "Capo-Divisione della Sanità" to recommend to the Minister such supplementary precautions as the future course of the epidemic might necessitate.

Honours to Italian Medicine.

Scientific amenities are "in the air." The Royal Society of London had scarcely awarded its Darwin medal to Professor Grassi for his researches in confirmation of the law of evolution, when the Académie Française conferred on Dr. Francesco Todaro, Professor of Anatomy in the Roman School, its gold medal in recognition of his anatomical and embryological work, and of the very important part he has borne in the resuscitation of morphological studies in Italy during the last thirty years.

Death of Professor Luigi Calori.

In Italy death has, on the whole, been sparing of men of light and leading in the profession during 1896, but among those who have "gone over to the majority" Bologna has to deplore her able and accomplished Professor of Anatomy, Dr. Luigi Calori, member of the Academy of Sciences and corresponding fellow of numerous other scientific bodies, Italian and foreign. To the last he kept up his interest in the nature study in which he was early proficient, and, while an admirable teacher of his special subject, he left his mark on physiology, pathology, and morphology, in all of which he read and published papers embodying much independent and ingenious research. He was in his ninetieth year and leaves behind a reputation for industry, sagacity, and expository power but partially recognised in the many royal and civic honours conferred on him during his long and useful life.

Medico-Military Heroes.

If there is a subject that has yet escaped the all-utilising man of letters it might be found under the above title. I speak not now of such episodes in the army medical service as those of the Peninsular campaign, in which, according to General Sir George Napier, the English-speaking surgeons acquitted themselves with a courage only equalled by their professional skill. In Africa the service has a history exceptionally honourable—witness the heroism of Dr. James Ormiston McWilliam on the Niger, which so impressed Thackeray that in his "Lectures on the Humourists" he singles it out as an example of what is possible to British pluck. Even in the day now passing the humiliating reverses of Italy on Ethiopian soil have been redeemed by the splendid self-devotion of her medico-military staff—"the only, or almost the only, consolatory feature on the disastrous days of Amba Alagi and Abba Carima," said an Italian statesman to me lately. I gave some account in a recent letter of gallant young Alfredo Smuraglia of Orvieto who fell in the massacre of Mogadisciù in the Somali country. Since then details have come to hand which place the heroism of the "tenente-medico" in a specially significant light. Captain Cecchi's expedition, of which he was the professional adviser, had, after four hours' march, reached at 8 P.M. a giant forest, in the shadow of which the force, in the highest spirits, halted for the night. By 11 P.M. all were asleep; but about 3 A.M. a piercing cry aroused the slumberers—the Ascari sentinels had been assassinated by the Somalis. Then began a hand-to-hand encounter with the assailants in the dark which lasted till daybreak, when Captain Cecchi, without as yet the loss of a single European, began his retreat. At 7 A.M. the force got involved in an ambuscade and was at once the target for a shower of arrows. Captain Cecchi, ably seconded by Dr. Smuraglia, made a determined stand, and the whole party were doing deadly execution with their rifles and revolvers, till at last their ammunition gave out. "Il nostro dottore," says one of the three surviving eye-witnesses, "ferito da due freccie nella schiena se ne strappò con un coraggio inaudito" (our doctor, wounded by two arrows in the spine, wrenched them out with unprecedented pluck), and continued the struggle hand-to-hand till the force fought its way to a garden whence they were able to resume their retreat. But one by one the wounded fell out of the ranks by the wayside, and on each of the fallen—among them the doctor—the pursuing Somali pounced, dedicating them to Allah as they butchered them barbarously. The same evening from Mogadisciù sallied forth a company formed from the crews of the *Volturno* and the *Staffetta* to rescue the bodies; but, hard pressed by the Somali hordes, they brought back only an instalment, at the cost of two of their number wounded. It is not yet known whether Dr. Smuraglia's corpse has been recovered, but no effort will be wanting in the renewed endeavour to wrest from the Somalis the mortal remains of the young medical hero who, in the cause of science and professional duty, faced death as bravely as any combatant officer who "carries his life in his hands."

Dec. 27th, 1896.

RUSSIA.

(FROM OUR OWN CORRESPONDENT.)

Student Disorders in the University of Moscow.

SOME account of the student disturbances which about three weeks ago created some excitement in Moscow has been telegraphed to the English papers; but the explanation of those disorders, which has been very fully set forth in a document issued by the Government, has apparently not yet found its way to the English press. It is always difficult, if not impossible, for a foreigner to form a just judgement upon the questions involved in such entirely domestic affairs as these recurring conflicts between the students and the authorities. While the probability is that there is something to be said on both sides of the question the more desirable course seems to be to keep an open mind on the subject rather than express those crude and usually anti-Governmental opinions which too often disfigure foreign criticism of Russian affairs. At the same time it is well to record impartially the evidence on both sides. The document already referred to, which now lies before me, states with most unusual detail and apparently without *animus* the circumstances which led up to the recent disorders. It would appear that for many years past there has been a gradual growth in all Russian universities of student societies. These societies are generally known as *zemliatchestvos* (from *zemlia*, territory), as they usually consist of students coming from one and the same district. Thus there would be a Siberian, a Riazan, or an Ukraine *zemliatchestvo*. Originally formed on the principle of mutual aid societies, many of them have gradually altered their character, and admitting political agitators and revolutionists to their membership have become openly revolutionary. A few years ago most of the societies in the Moscow University united to form a "League Council of United *Zemliatchestvos*," consisting of forty-five societies and 1500 individuals. This council very soon showed that it intended to deal with matters quite outside the University by passing violent resolutions on all sorts of social and Imperial matters. At the time of the Toulon *fêtes* it sent messages to the French students of "disapproval of the servility of a free nation before the representatives of an autocratic *régime*," and it voted sympathy with, and sent money to, men on strike in different parts of the country. A number of other matters in which it interfered need not be mentioned here; suffice it to say that the authorities last year felt themselves bound to take action, and they interrupted one of the meetings and seized the papers. From these and other documents since seized it was clear that the "League Council" was practically a hotbed of sedition. The first article in a scheme of action drawn up only on Oct. 21st of this year runs thus: "The League Council declares that the chief end of the Union of *Zemliatchestvos* should be the preparation of 'fighting-men' in the political struggle." The council demanded the repeal of the present University Act (1884) and the re-enactment of the milder one of 1863; and it also tried to organise a general and simultaneous rising of students in all the Russian Universities. In this

it failed. However, on Nov. 18th (old style) it took advantage of the semi-anniversary of the terrible disaster at the popular fête at the time of the Coronation to organise a demonstration. Five hundred students marched out towards the cemetery where the "victims of a careless administration" lie buried, but they were prevented from reaching the cemetery by the police. The students returned to the University, and refusing to disperse were arrested in a body and taken to the large Manége opposite. All but 36 of the ringleaders were soon liberated. On the following day 400 students held a meeting and sent a deputation to the Rector of the University, who, however refused to meet them. On the next two days meetings were held and many arrests took place. In all, the police arrested 711 students. Of them 662 were tried by the ordinary University court, but the remainder, 49 in number, will be tried by the general law as more serious offenders. Those tried by the University court were divided into three groups; those of the first two groups were sentenced to be dismissed from the University, but with the right of admission to other universities at the beginning of the next academical year; those of the third group (461 in number) were also sentenced to dismissal, but with the right of re-entering the Moscow University next year. Students of the second and third group were further recommended to mercy, as they appear to have acted under compulsion; but not those of the first group (26 in number). These recommendations have been approved by the Ministry of Education, and on the 25th, 26th, and 27th of November (old style) the whole 636 students of the second and third groups were liberated with a reprimand. On Nov. 27th the Rector published a notice that students who in future should take part in similar disturbances would be at once sent down without appeal; but that students who do not wish to submit to the present University regulations might receive back their papers and be written in as "retired from the University at their own request." Thus has ended what threatened to be a somewhat serious domestic trouble, in which the authorities, so far as may be gathered, seem to have acted with most commendable moderation. Before closing this brief record it may be stated that the total number of students in the University of Moscow is about 3500, of whom a third belong to the medical faculty.

Postponement of the Jenner Celebration.

The Russian Jenner Commemoration, which was to have been held on Nov. 24th (Dec. 6th), but had to be postponed, is now fixed for the 15th (27th) of December.

Dec. 14th (26th), 1896.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Treatment of the Epileptic in Colonies.

THE progress of the colony for epileptics in the State of New York becomes more and more interesting. Although it has been opened for the reception of patients little more than a year, the results of this method of treating epileptics have been most pronounced. The annual report of the superintendent shows that nearly every case has gained in weight and in general health. In all cases the epileptic seizures have diminished in frequency to a marked degree, and in some instances this has been even extraordinary. The expression of the inmates has altered, so that, instead of the dull, hopeless look of the alms-house epileptics, one sees on all sides happy faces in which intelligence and hope are being re-awakened. The school has been successfully started for fifteen or twenty of both sexes. Much of the printing of the colony is now done by two or three epileptics in the colony's own printing office. Carpentry, sewing, painting, &c., are being carried on by the patients. They have their own epileptic blacksmith. The chief work of the inmates of both sexes is in the field and garden, and this labour also has a great effect upon the income of the colony. In regard to the effect of colony life upon epileptic seizures it may be noted that the first fifty patients who were under treatment five months and over before the close of the fiscal year had collectively 708 seizures. The same fifty cases, after five months treatment, had collectively, during the fifth month, 315 seizures. During the first month each case averaged fourteen attacks; during the fifth month, each case averaged six attacks.

An Ambulance Ship.

Surgeon-General Tryon of the United States Navy has proposed to add to our ships one or more suitably constructed vessels, the duty of which shall be to save and care for all wounded and drowning men during an engagement. It is recommended that this vessel shall be of such size as to render it easy of control in action and swift and efficient in rescuing the large number of sailors who are swept overboard in every naval conflict. Such a ship should receive the same courtesies accorded to the wearers of the Red Cross by all civilised nations. The advantages of such a plan have been so impressed upon the minds of all who entertain a proper regard for the lives of our brave sailors that the equipment and trial of these ambulance ships may be expected as one of the early improvements in the United States Navy.

Abuse of Dispensaries and Hospitals of New York.

The new President of the New York County Medical Society, Dr. Gray, in his inaugural address states that at the present time there are 26 hospitals and 114 dispensaries in this city. In the former, during the year 1895, 75,368 patients have been treated free and in the latter 661,803, making a total of 737,171, in a population of 1,851,060. In other words, the proportion of such free patients to the whole community is 39 per cent. There have been 92,529 free visits of patients to hospitals in 1895, and 1,387,170 free visits of patients to dispensaries. Out of 1,104,381 prescriptions that have been dispensed, there is no means of knowing exactly how many have been without charge, because 52 of the dispensaries have made no report to the State Board of Charities, while of the 62 that have been reported 16 make no charge for their medicines and 46 make nominal charges of from five to fifty cents, or nothing when the patient is unable to pay. Of these 114 dispensaries 60 take certain precautions to weed out the unworthy, such as making inquiries, questioning the patients, judging by their appearance and by the statements of physicians sending them, while the remaining 54 either make no inquiries or have made no report. Efforts were made to ascertain how many of the patients were non-residents, but the answers were usually very indefinite, one institution stating "Very few, if any," others "From 1 to 10 per cent.," while ten had treated 2124.

Carriers of Sick Passengers.

The Apellate Court of Indiana has decided that if a carrier accepts a passenger knowing that he is sick or infirm ordinary care must be used in seeing that he is transported safely and is given a reasonable time and proper assistance in getting on and off its cars. A carrier will not be required to accept or transport one having a contagious disease, or to accept as a passenger one who is physically disabled or unable to take care of himself. If a person desiring to become a passenger is unable, on account of extreme youth or old age or any mental or physical infirmities, to take care of himself he must be provided with an attendant to take care of him. The carrier is not bound to furnish him with an attendant.

Dec. 16th, 1896.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: THE MEETING OF FELLOWS.

AT the meeting of Fellows to be held on Thursday next, Jan. 7th, at 4 o'clock, Mr. Timothy Holmes has set down upon the agenda the following motion:—"That this meeting desires to call the attention of the Council to the published reports of the proceedings of the General Medical Council in the case of Mr. R. B. Anderson and to the remarks and action of Mr. Bryant on the occasion, and to ask the Council whether their representative has, in this instance, correctly construed their instructions."

Mr. Rivington will also move:—"That this meeting submits to the Council that no objection can apply to an advance from the funds of the College to prosecute Mr. Anderson's Appeal to the Privy Council, and therefore trusts that the Council will sanction a grant for that purpose."

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen having passed the necessary examinations, and having conformed to the by-laws and regulations, have been admitted Fellows of the College in the order of their seniority as Members of the College :—

Quick, William Henry (Surgeon-Major, I.M.S), L.S.A. Lond.' Westminster and King's College Hospital; membership dated July 28th, 1880.
Harris, Herbert Elwin, M.B. Camb., L.R.C.P. Lond., Cambridge University and St. Bartholomew's Hospital; Oct. 28th, 1885.
James, George Thomas, L.R.C.P. Lond., Westminster Hospital; Feb. 13th, 1890.
Jaffrey, Francis, L.R.C.P. Lond., St. George's Hospital; May 8th, 1890.
Nall, John Frederick, L.R.C.P. Lond., St. Bartholomew's Hospital; July 28th, 1890.
Riley, Frederick Ratcliffe, L.R.C.P. Lond., London Hospital; July 28th, 1890.
Elsworth, Richard Cogswell, M.B., C.M. Edin., Edinburgh University and Royal College of Surgeons of Edinburgh; July 30th, 1891.
Gladstone, Reginald John, M.D. Aberd., L.R.C.P. Lond., Aberdeen University and Middlesex Hospital; Aug. 1st, 1892.
Howat, Robert King, M.B. C.M. Glasg., L.R.C.P. Lond., Glasgow University and St. Mungo's College; Feb. 9th, 1893.
Castellote, Ramon Horace, M.D. Lond., L.R.C.P. Lond., University College Hospital; May 11th, 1893.
Davies, Hugh, M.B., B.S. Lond., L.R.C.P. Lond., University College and Guy's Hospital; July 27th, 1893.
Hall, Charles Beauchamp, L.R.C.P. Lond., St. Mary's Hospital; July 27th, 1893.
Scott, James Andrew Neptune, M.D., C.M. Glasg., L.R.C.P. Lond., Glasgow University and London Hospital; July 27th, 1893.
Pendred, Vaughan, M.B. Durh., L.R.C.P. Lond., Guy's Hospital and Durham University; Nov. 9th, 1893.
Ryall, Charles, L.R.C.P. Lond., L.R.C.P. Edin., Westminster and King's College Hospital; Feb. 8th, 1894.
Grace, John Johnston, M.B., B.S. Durh., L.R.C.P. Lond., Otago University, Dunedin and St. Bartholomew's Hospital; May 10th, 1894.
Finch, Albert Edwin Hayward (Indian Medical Service), L.R.C.P. Lond., University College, and Royal United Hospitals and St. Bartholomew's Hospital, May 10th, 1894.
Hewer, Cecil Mackenzie, L.R.C.P. Lond., St Bartholomew's Hospital; July 5th, 1894.
Every-Clayton, Leopold Ernest Valentine, M.B., B.S. Lond., L.R.C.P. Lond., Guy's Hospital; Feb. 7th, 1895.
Giles, Leonard Thomason, L.R.C.P. Lond., Cambridge University and St. Bartholomew's Hospital; Feb. 7th, 1895.
Willis, William Morley, L.R.C.P. Lond., University College and General Hospital, Bristol, and St. Bartholomew's Hospital; May 9th, 1895.
Shaw, Harold Batty, M.B., B.S. Lond., L.R.C.P. Lond., Yorkshire College and General Infirmary, Leeds, and University College Hospital; July 29th, 1895.
Savage, Ernest Smallwood, M.B., B.Ch. Oxon., L.R.C.P. Lond., Oxford University and London Hospital; May 14th, 1896.
Bruce, Herbert Alexander, M.D. Toronto, L.R.C.P. Lond., Toronto University and General Hospital, and University College Hospital; Aug. 4th, 1896.
Melsome, William Stanley, M.D., B.C. Camb., Cambridge University and St. Thomas's Hospital; not previously a member.

Five other gentlemen passed the Examinations, but not having yet attained the legal age (twenty-five years) will receive their Diplomas at future meetings of the Council. Twenty-one gentlemen were referred for six months.

The following gentleman has previously passed the necessary examinations, and having now attained the legal age (twenty-five years) was also admitted a Fellow :—

Fraser, Forbes, L.R.C.P. Lond., St. Bartholomew's Hospital.

The following gentlemen having passed the necessary examinations, have been admitted Licentiates in Dental Surgery :—

Amphlett, Donald, Mason's College, Queen's and General Hospitals and Dental Hospital, Birmingham.
Anderson, Charles Frederick, University College, Royal Infirmary and Dental Hospital, Liverpool.
Anderson, Jonathan Harrison, University College, Royal Infirmary and Dental Hospital, Liverpool.
Carter, Charles Edward, Middlesex and the Dental Hospital of London.
Chatterton, Guy, Guy's Hospital, Dental Department and School.
Cribb, Harold Ernest, Charing Cross and the Dental Hospital of London.
Dalby, Charles Burkitt, Owen's College, Royal Infirmary and Victoria Dental Hospital, Manchester.
Donston, John Alexander Malin, Guy's Hospital, Dental Department and School.
Doyle, Clement Needham, Guy's Hospital, Dental Department and School.
Ellis, George Garnett, Guy's Hospital, Dental Department and School.
Evans, Sydney James, Guy's Hospital, Dental Department and School.
Goadby, Kenneth Weldon, Guy's Hospital, Dental Department and School.
Goodman, Thomas Dawson Edwin, Guy's Hospital, Dental Department and School.
Green, Walter, Charing Cross and the Dental Hospital of London.
Halliday, Alfred Reginald, Charing Cross and the National Dental Hospital.
Harding, George Herbert, University College, Royal Infirmary, and Dental Hospital, Liverpool.
Harrison, Arthur Edward, University College, Royal Infirmary, and Dental Hospital, Liverpool.
Hartnoll, Percy O'Bryen, Charing Cross and the Dental Hospital of London.
Hounsell, Ludlow Strangways, Guy's Hospital, Dental Department and School.
Humphrys, Jack Edmund, Charing Cross and the Dental Hospital of London.
James, John Joseph, University College, Royal Infirmary, and Dental Hospital, Liverpool.
Jeffery, Ernest, Middlesex Hospital and Dental Hospital of London.
Jones, William, Middlesex Hospital and the National Dental Hospital.
Knowles, Charles Heygate, Guy's Hospital, Dental Department and School.
Malone, Charles Albert, Charing-cross and the Dental Hospital of London.
Matthews, George Frederick Cole, Mason College, Queen's and General Hospital, and Dental Hospital, Birmingham.
Myers, Thomas Cyrill, Charing-cross and the Dental Hospital of London.
Naish, Godfrey, Guy's Hospital, Dental Department and School.
Parrot, Ernest Garner, Charing-cross and the Dental Hospital of London.
Pearse, Francis Henry, Middlesex and the National Dental Hospital.
Phillips, Charles Brooking, Middlesex and the National Dental Hospital.
Reece, Thomas Cadarn, Middlesex and the National Dental Hospital.
Ralph, Arthur Ernest, Middlesex and the National Dental Hospital.
Robertson, John Henry, Charing-cross and the Dental Hospital of London.
Simpson, Graham Scales, Guy's Hospital, Dental Department, and School.
Smith, Bernard, University College, Royal Infirmary and Dental Hospital, Liverpool.
Smith, Sidney, University College, Royal Infirmary and Dental Hospital, Liverpool.
Stephenson, John, Owens College, Royal Infirmary, and Victoria Dental Hospital, Manchester.
Turner, Henry Watson, Middlesex and the Dental Hospital of London.
Wale, Samuel Thomas, Middlesex and the Dental Hospital of London.
Wheeler, Ernest Alfred, Middlesex and the National Dental Hospital.
Whittington, William Borrett, Charing-cross and the Dental Hospital of London.
Young, Ralph Littlewood, Middlesex and the Dental Hospital of London.

Twenty-nine gentlemen were referred back to their professional studies for three months

UNIVERSITY OF CAMBRIDGE.—At the examinations for medical and surgical degrees in the Michaelmas term, 1896, the following were successful in the subjects indicated :—

FIRST EXAMINATION.

Part I.—Chemistry and Physics.—H. Ackroyd, Gonville and Caius; J. F. Alexander, Trinity; Barton, Pembroke; Bennion, St. John's; Bottomley, Christ's; Butler, Emmanuel; Byles, King's; Clapham and Cohen, Emmanuel; Cole and W. H. Dickinson, B.A., Trinity; Dudley, H. Selwyn; Edwards, Downing; T. R. Elliott, Trinity; Freere, Pembroke; E. Gardner, Gonville and Caius; Goyder, St. John's; G. W. Greene, Downing; Hailstone, H. Selwyn; A. W. Harvey, St. John's; Haynes and Heath, Downing; Holtzmann, Christ's; E. G. Kelgren, Trinity; Kirk and Lanchester, King's; G. C. Lawson, Trinity; Leighton, St. John's; Leslie, Pembroke; Leveaux, St. John's; Lowe, Lucas, and Matheson, Gonville and Caius; Metthews, Downing; Molteno, Pembroke; Muspratt, Christ's; Nathan, B.A., and Noon, Trinity; Norman, L. Orton, and Paramore, St. John's; Paton, B.A., Gonville and Caius; H. Robinson, Trinity; Salzmann, Pembroke; Sapwell, B.A., Corpus Christi; Scarborough, St. John's; E. J. Scott, B.A., Trinity; A. V. Sedgwick, B.A., Gonville and Caius; Shone, Emmanuel; Snell, B. Spearman, and Spurrier, Gonville and Caius; Stiebel, Trinity Hall; Tonge, Emmanuel; Trigg, Christ's; Wakefield, Trinity; Wales, Sidney-Sussex; F. Whitaker and L. Wigram, Trinity; Wiltshire, St. John's; Woolley, King's; and Wylie, Pembroke.

SECOND EXAMINATION.

Part I.—Pharmaceutical Chemistry—Andrews, St. John's; Aveling, Christ's; L. E. H. R. Barker, Gonville and Caius; Bentley, St. John's; Bowdler, Sidney-Sussex; Bréhaut, B.A., H. Selwyn; H. S. D. Browne, Trinity; J. M Brydone, Jesus; Burrows, B.A., Emmanuel; E. M. Clark and H. H. Clarke, Trinity; A. J. Clarke, Emmanuel; Colyer, M.A., Catharine; Cooke, B.A., Sidney-Sussex; Deeping, Trinity; Elliston, Catharine; Emerson, Gonville and Caius; Eve, B.A., Emmanuel; W. M. Fletcher, B.A., Trinity; Franklin and Gayner, King's; Gilbart-Smith, B.A., Trinity; Greene, B.A., Corpus Christi; C. F. Hardie, Queen's; Heap, Sidney-Sussex; J. P. Hedley, King's; Hill, B.A., Emmanuel; Hodder and Hodgkin, King's; Holroyde, A. C. Hudson, and Ingram, Trinity; Kempthorne, St. John's; Kitchin, Downing; Laycock, St. John's; Le Lacheur, Trinity; Linnell, B.A., H. Selwyn; Naish, B.A., Emmanuel; Norton, Trinity; Nothwanger, St. John's; Parker, Pembroke; J. S. Pearson, Trinity; Perkins, St. John's; Phillpotts, Christ's; Rashleigh, B.A., and Reynolds, B.A., Trinity; Rob, St. John's; Roper, Gonville and

Caius; St. Clair Smith, Trinity Hall; Simey, B.A., King's; Skrimshire, Jesus; Smedley, Pembroke; Stockwell, King's; Taylor, Non-Collegiate; Thornton, Trinity; Wacher, St. John's; Wales, Downing; Walker, B.A., King's; Whale, Jesus; Wharton, St. John's; Wilgress, H. Selwyn; G. R. Wilson, Trinity; J. A. Wood, St. John's Wood, Downing; and Worthington, Gonville and Caius.

UNIVERSITY OF LONDON.—The following candidates were successful in the examinations indicated:—

M.D. EXAMINATION.

Medicine.—Edward Buller Allan, University College and University of Melbourne; Henry Russell Andrews, London Hospital; George Henry Barker, B.Sc., University College, Bristol; Stanley Mewburn Brown, Owens College and Manchester Royal Infirmary; John Alfred Codd, B.Sc., Yorkshire College; James Stansfield Collier, B.Sc., St. Mary's Hospital; *Francis Graham Crookshank, University College; Edward Meade Cuffe, St. Bartholomew's Hospital; Wilfrid Edgecombe, University College, Liverpool and London; Leopold E. V. Every-Clayton, B.S., Guy's Hospital; Henry George Felkin, London Hospital; Samuel Ernest Gill and John Howell Griffiths, B.Sc., St. Bartholomew's Hospital; Ed. M. Hainworth, B.S., B.Sc., St. Thomas's Hospital; William Sampson Handley, B.S, Guy's Hospital; John Owen Harvey, St. Bartholomew's Hospital; Ralph Hopton, B.S., Yorkshire College; Gerald Stanley Hovenden, B.S., Guy's Hospital; Arthur William Kirkpatrick-Pickard, University College; William Edward Lee, St. Bartholomew's Hospital; Alfred Goodman Levy, William Britain Morton, and Frederic Layton Orr, University College; Leonard Arthur Parry, B.S., Guy's Hospital; Charles Herbert Perram, St. Bartholomew's Hospital; Frederick John Poynton, St. Mary's Hospital; Matthew Henry Raper, Middlesex Hospital; Ernest Noel Reichardt, St. Bartholomew's Hospital; A. John Rodocanachi, B.S., B.Sc., University College; Alfred Salter, B.S. (gold medal), Guy's Hospital; Edmond Wallace Selby, B.S., University College; William Shears, St. Bartholomew's Hospital; Ernest Jackson Smyth, B.S., B.Sc., University College; Robert Hunter Steen, St. Mary's Hospital; and George Harold Cawley Way, B.S., University College.

* Obtained the number of marks qualifying for the gold medal.

M.S. EXAMINATION.

Hamilton A. Ballance, M.D, University College; Harold Leslie Barnard, London Hospital; Julius St. Thomas Clarke, M.D., Guy's Hospital; George Hebb Cowen, London Hospital; John William Frank Jewell, M.D., Guy's Hospital; William Prior Purvis, M.D., B.Sc., St. Thomas's Hospital; Mary Ann D. Scharlieb, M.D., London School of Medicine for Women; and Thomas Morrell Thomas, Guy's Hospital.

B.S. EXAMINATION.

First Division.—John Howard Cook, University College; Edward Guy Dru Drury and James Henry Hugo, St. Bartholomew's Hospital; Arthur William Jenkins, University College; Hugh Mallinson Rigby, London Hospital; Herbert John Scharlieb, University College; and Ethel May Vaughan, London School of Medicine and Royal Free Hospital.

Second Division.—Wilfrid Allport, Queen's College and General Hospital, Birmingham; Emile Dupont Aubin, Middlesex Hospital; Cecil Banting and Charles Bolton, B.Sc., University College; William Francis Victor Bonney, Middlesex Hospital; Eustace Bernard Bostock, Mason College and General Hospital, Birmingham; Margaret M. Traill Christie, London School of Medicine and Royal Free Hospital; Walter Ernest Dixon, B.Sc., St. Thomas's Hospital; Archibald R. J. Douglas, St. Bartholomew's Hospital; George Gilbert Genge, St. Thomas's Hospital; Tom Harold Hunt, Yorkshire College; Charles Ernest Mackenzie Kelly, Owens College; Octavia Margaret Sophia Lewin, London School of Medicine and Royal Free Hospital; Carlton Oldfield, Yorkshire College; Norman Howard Pike, Guy's Hospital; George Basil Price, Bristol Medical School and St. Bartholomew's Hospital; Charles Roberts, Middlesex Hospital; Arthur Richard Harrie Skey, St. Bartholomew's Hospital; Arthur Herbert Spicer, Guy's Hospital; Arthur Stanley, M.D., St. Mary's Hospital; Frank Butler Thornton and Edward Owen Thurston, St. Thomas's Hospital; Francis Thomas Waldron, London Hospital; Lizzie Wilks, M.D., London School of Medicine for Women; and Francis Kenneth Wilson, Westminster Hospital.

FOREIGN UNIVERSITY INTELLIGENCE.—*Breslau:* Dr. L. Mann has qualified as *privat docent* in Neurology.—*Kazan:* Dr. V. Rasumovski has been appointed Professor of Clinical Surgery in succession to Professor Kusmin, who has resigned.—*Rome:* Dr. Vittorio Ascoli has qualified as *privat docent* in Medical Pathology.—*Zürich:* Dr. W. Feliz, prosector in the Anatomical Institute, has been appointed Extraordinary Professor.

ST. LUKE'S HOSPITAL.—The Steward appeals for subscriptions on behalf of this institution. Last year the appeal funds, added to the amount voted by the committee of Governors, enabled a regular series of weekly entertainments to take place throughout the winter months, extending late into the year. The entertainments for the present season commenced in the first week of October, 1896, and have been carried on weekly up to the present time. The list will be kept open until the end of March, and the smallest amount will be gratefully appreciated.

THE COLONY OF EPILEPTICS.—On Saturday, the 19th ult., a handsome recreation hall, presented to the Colony of Epileptics at Chalfont St. Peters by Mrs. Cash, was formally opened by the donor. The hall is designed not only as a social meeting place for the colonists, but as a chapel wherein services can be held by the ministers of various denominations who visit the institution. After an entertainment, which included two solos on the violin by Miss Buzzard, Dr. Buzzard proposed a vote of thanks to Mrs. Cash, which was warmly received. The arrangements for the entertainment were in the hands of the honorary secretary of the colony, Miss Burdon Sanderson.

BEQUESTS AND DONATIONS TO HOSPITALS.—The Committee of Management of Queen Charlotte's Lying-in Hospital, London, has received £100 from Messrs. C. J. Hambro and Sons, £100 guineas from Messrs. J. S. Morgan and Co., £1000 from the Dowager Lady Howard de Walden, and 100 guineas from Mr. P. Reid.—The treasurers of the Middlesex Hospital have received from "M. H. S." £100, £100 (annual subscription) from the Delwar Charitable Trust towards the maintenance of the Cancer Wards, and £100 from the executors of the late Sir A. A. D. Sassoon.—The committee of the Mary Wardell Convalescent Home for Scarlet Fever, Stanmore, has received £100 from Mrs. Allan.—The Board of Management of St. Mary's Hospital, London, has received under the will of the late Miss Ruth Watson £325 7*s.* 4*d.* and £1000 from Mrs. Arnold Gabriel to endow a bed in memory of her late husband.—The Board of Management of the East London Hospital for Children, Shadwell, has received from "G. S. B." £100 and £100 bequeathed by the late Mr. Joseph W. Prince of Croydon.—The Croydon General Hospital has received £100 bequeathed by the late Joseph W. Prince.—Mrs. George Holt of Sudeley, Mossley Hill, has sent a donation of £500 towards the funds of the Stanley Hospital, Liverpool, in memory of her late husband.—The Worshipful Company of Skinners has contributed £100 to King's College Hospital, London, being the fourth instalment of their promised donation of £500 in five years.—A donation of £105 has also been received from Mr. Charles P. Johnson.—The late Mr. Henry Wilson of Cottingham House, Yorkshire, has bequeathed 100 guineas to the Hull General Infirmary.—Mr. E. T. Hooley, of Risley Hall, Derby, has sent a donation of £1200 to the Derbyshire Infirmary.—The late Mr. Benjamin Goodman of Leeds has bequeathed £1000 to the Leeds Infirmary, £500 to the Leeds Public Dispensary, and £500 to the Women's and Children's Hospital.—Under the will of the late Mrs. Cuppage of Doddington, Whitchurch, the Whitchurch Cottage Hospital becomes entitled to a legacy of £200 free of legacy duty.—The treasurer of Charing-cross Hospital, London, has received a donation of £1000 from the Rev. Francis Jacox to endow a bed in the hospital.—The governors of the London Lock Hospital and Rescue Home have received £105 from the Worshipful Mercers' Company.—The Corporation of London has contributed 100 guineas to the Chelsea Hospital for Women and Convalescent Home at St. Leonards-on-Sea.—The late Miss D. Dixon of Broughton has bequeathed £1000 to the London Cancer Hospital, and £500 each to the Preston and County of Lancaster Royal Infirmary.—The Treasurer of the Montague Cottage Hospital has received £127 10*s.* under the will of the late Mr. Robert Elliner of Sevinton.—The Board of Management of the National Hospital for Consumption, Ventnor, Isle of Wight, has received a donation of 100 guineas from Mr. Chas. S. Burroughes.—The executors of the late Sir A. A. D. Sassoon have forwarded £100 to the Hospital for Sick Children, Great Ormond-street, Bloomsbury.—The treasurer of the National Hospital for the Paralysed and Epileptic (Albany Memorial), Queen's-square, Bloomsbury, has received a donation of £100 from "E. M. E."—The Committee of Management of the North London Consumption Hospital, Hampstead Heath has received £350 from Mrs. Cash, to endow a bed in the hospital.—The late Mrs. Roxburgh of Bath has bequeathed £500 to the Bath Royal United Hospital and £100 to the Bath Ear and Eye Hospital.—By the death of Mrs. Memmoth, widow of Mr. George F. Memmoth, the following legacies become payable—namely, £250 each to the Bristol Royal Infirmary and the Bristol General Hospital, and £100 each to the Bristol Eye Hospital and the Hospital for Women and Children.—Mrs. Tubbs has contributed a donation of £100 to the New Hospital for Women, Euston-road, London.—

The late Rev. Carr J. Glyn of Whitchampton Rectory, Dorset, has bequeathed £100 each to the Dorset County Hospital and the Wimborne Cottage Hospital.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.*

BENTLEY, W. L., L.S.A., has been appointed Medical Officer for the Second Sanitary District of the Oldham Union.

BROWNE, D. G., M.D., Ch.M. Irel., has been appointed a Public Vaccinator for the District of Gisborne, New Zealand.

BRYANT, T., F.R.C.S., has been appointed Consulting Surgeon to the Hospital for Epilepsy and Paralysis and other Diseases of the Nervous System, Regent's-park, vice Sir John Erichsen, deceased.

BUCK, L. A., M.R.C.S., has been re-appointed Medical Officer for the Bolton Workhouse.

CLELAND, W. L., M.B., C.M. Edin., has been appointed a Colonial Surgeon and Resident Medical Officer to the Adelaide Lunatic Asylum, South Australia.

CRAIG, W. J., M.B., Ch.B. Melb., has been appointed Officer of Health for Fern Tree Gully Shire, Victoria, Australia.

DANIEL, W. P. T., L.R.C.P. Lond., M.R.C.S., D.P.H., has been appointed Medical Officer for the Kirkburton Sanitary District of the Huddersfield Union.

DODSWORTH, F. C., L.R.C.P. Lond., M.R.C.S., has been re-appointed Medical Officer of Health by the Chiswick District Council.

FOX, J. R., M.B. Melb., has been appointed a Public Vaccinator at Rokewood, Victoria, Australia.

FRY, A. CRADOCK, M.A., L.R.C.P., M.R.C.S., has been appointed House Surgeon to the Royal Berkshire Hospital, Reading.

GIBB, W. ALEXANDER, M.B., C.M. Edin., has been appointed Junior House Surgeon to the General Infirmary, Gloucester.

GOWLAND, G. R., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer for the No. 7 Sanitary District of the Chorlton Union, vice F. Milland, resigned.

HODGE, ALBERT, M.R.C.S., L.R.C.P., has been appointed Resident Medical Officer to the Manchester Hospital for Consumption and Diseases of the Throat, vice John Penny, resigned.

JOHNSON, J. H., M.B., Ch.M. Edin., has been appointed Medical Officer to the Hospital at Alexandra, Victoria, Australia.

KING, W. M., M.R.C.S. Eng., has been appointed a Surgeon to the Hospital at Boulia, Queensland.

LEWERS, T. H., M.B., Ch.B. Melb., M.R.C.S. Eng., has been appointed a Member of the Public School Board for the Sub-district of Berry, New South Wales.

LIVINGSTONE, JOHN, M.D., C.M. Glasg., has been appointed Medical Officer of the Royal Naval Reserve for the Port of Barry.

LOVEGROVE, T. H., M.R.C.S. Eng., has been appointed President of the Central Board of Health, West Australia.

MACDONALD, A. H. W., M.B., C.M. Edin., has been appointed Medical Officer for the Old Ford Sanitary District of the Poplar Union.

MACDONALD, R., M.B., C.M. Glasg., has been appointed Health Officer at Leederville, West Australia.

PACKER, W. H., M.D. Brux., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Medical Officer to the Atcham Union Workhouse and Infirmary, Shrewsbury.

PADBURY, G. J., M.B. Lond., L.R.C.P., M.R.C.S., has been appointed Medical Officer for the Hawkchurch Sanitary District of the Axminster Union.

PARKINSON, C. H. W., M.R.C.S., D.P.H. Edin., has been appointed Medical Officer of Health by the Wimborne and Cranborne Rural District Council.

PRENDERGAST, J. J., M.D. Irel., L.R.C.P. Edin., M.R.C.S. Eng., has been appointed a Medical Officer to the Hospital at Bardoe, West Australia.

SHAW, F. C. S., M.B. Syd., has been appointed a Medical Officer to the Emmaville (Vegetable Creek) Hospital, New South Wales.

SHEAF, C. A. E., L.R.C.P., F.R.C.S. Edin., has been appointed a Government Medical Officer at Levuka, Fiji.

SPURR, JAS., M.R.C.S., has been appointed Medical Officer of Health for the Borough of Lyme Regis.

TAYLOR, D., M.B., Ch.M. Aberd., has been appointed Health Officer at Cue, West Australia.

THOMPSON, JOHN A., M.D. Brux., D.P.H. Camb., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Chief Medical Officer of, and Medical Adviser to, the Government of New South Wales.

TOTHILL, F. C., M.B., C.M. Edin., has been appointed Medical Officer for Ashford, the Staines Union.

WICKS, CHAS., L.R.C.P., L.R.C.S. Edin., has been appointed Resident Medical Officer for the Gascoyne District, Public Vaccinator for the Urban and Suburban Districts of Carnarvon and Rural Districts of Gascoyne, and Quarantine Officer for the Port of Carnarvon.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM GENERAL DISPENSARY.—Resident Surgeon. Salary £150 per annum, with an allowance of £30 per annum for cab hire, and furnished rooms, fire, lights, and attendance.

CITY OF LONDON LYING-IN HOSPITAL, City-road, E.C.—District Surgeon.

COSFORD UNION, Suffolk (Layham District).—Medical Officer and Public Vaccinator for this district. Salary £44 5*s.* 8*d.* per annum and certain extra medical fees, &c. Applications to the Clerk to the Guardians, Union Offices, Hadleigh, Suffolk.

COUNTY ASYLUM, Rainhill, near Liverpool.—Assistant Medical Officer, unmarried. Salary commences at £100 per annum, with prospect of increase to £250, together with furnished apartments, board, attendance, and washing.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark-bridge road, S.E.—Senior Resident Medical Officer. Salary £70, with board and washing. Also Surgeon to Out-patients.

FARRINGDON GENERAL DISPENSARY AND LYING-IN CHARITY, 17, Bartlett's-buildings, Holborn-circus, London.—Honorary Physician.

HOSPITAL FOR WOMEN (the London School of Gynæcology), Soho-square, W.—Clinical Assistants.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Physician.

MIDDLESBROUGH NEW ASYLUM.—Medical Superintendent. House (unfurnished, with rates and taxes free), coal, gas, water, and washing will be allowed. Salary required to be stated.

QUEEN'S HOSPITAL, Birmingham.—Third Casualty Surgeon for three years. Honorarium £50 per annum. Also Second Physician for Out-patients, for three years. Honorarium £50 per annum.

ROYAL HANTS COUNTY HOSPITAL, Winchester.—Assistant House Surgeon. Salary at the rate of £20 per annum, with board and lodging.

SHEFFIELD ROYAL HOSPITAL.—Honorary Dental Officer for three years.

SOUTH DEVON AND EAST CORNWALL HOSPITAL, Plymouth.—House Surgeon. Salary £100, with board and residence.

SUNDERLAND AND NORTH DURHAM EYE INFIRMARY, Sunderland.—House Surgeon. Salary at the rate of £10 per annum, out-door.

THE URBAN DISTRICT OF YSTRADYFODWG.—Medical Officer of Health, for one year. Salary £450, including travelling expenses. Applications to Mr. W. H. Morgan, Clerk, Treforest, Glamorganshire.

UNIVERSITY OF EDINBURGH.—Examiners.

VICTORIA HOSPITAL FOR SICK CHILDREN, Queen's-road, Chelsea, S.W.—House Physician for twelve months. Honorarium £50, and board and lodging in the hospital provided.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL, Wolverhampton.—Resident Assistant, qualified, for six months. Board, lodging, and washing provided.

Births, Marriages, and Deaths.

BIRTHS.

AUBREY.—On Dec. 21st, at Dunelm, The Grove, Wandsworth, S.W., the wife of A. Reuben Aubrey, M.D., M.B., M.R.C.S., of a daughter.

BAMPTON.—On Dec. 24th, at Brookfield, Ilkley-in-Wharfedale, the wife of Dr. Augustus H. Bampton, of a daughter.

BRYDEN.—On Dec. 28th, the wife of Richard J. Bryden, M.R.C.S. Eng., L.S.A. Lond., of 21, Harmer-street, Milton-next-Gravesend, of a daughter.

CAIGER.—On Dec. 23rd, at the South-Western Hospital, Stockwell, the wife of Frederick Foord Caiger, M.D., M.R.C.P., of a son.

JACKSON.—On Dec. 25th, at 216, Great Dover-street, S.E., the wife of Philip J. Jackson, M.R.C.S. Eng., of a daughter.

STEWART.—On Dec. 22th, at Walton House, Lordship-lane, S.E., the wife of H. M. Stewart, M.A., M.B., B.C., of a daughter.

WALKER.—On Dec. 22nd, at 320, Hoe-street, Walthamstow, the wife of Alfred Walker, M.A., M.D. Cantab., of a daughter.

MARRIAGES.

LANE—REINDORP.—On Dec. 29th, at St. James's Church, Clapham-park, William Byam Lane, Surgeon-Captain, Indian Medical Service, eldest surviving son of the Hon. Edgar H. Lane, of Antigua, West Indies, to Edith Kate Westlake, eldest daughter of John Edmund Reindorp, of St. Hubert's, Abbeville-road, Clapham-park.

WARREN—BULLIVANT.—On Dec. 19th, at St. Luke's, Wolverhampton, John Monteith Warren, M.D., of New Zealand, to Helen Emma, second daughter of Edmund Bullivant, of Wolverhampton.

WHITEHOUSE—WATSON.—On Dec. 16th, at St. Andrew's Church, Calcutta, John Whitehouse, M.B., C.M. Ed., to Margaret, second daughter of Walter Watson, Esq., M.D., 54, Mayfield-road, Edinburgh. (By cablegram.)

DEATHS.

BROADBENT.—On Dec. 29th, suddenly, at his residence, The Green, Easington, county Durham, Samuel Winn Broadbent, M.R.C.S.E., for forty-six years Medical Officer to the Easington Union, aged 76.

INNES.—On Nov. 2nd, at Gisborne, New Zealand, John Fraser Innes, M.D., eldest son of the late Surgeon-General Francis William Innes, M.D., C.B., aged 44.

MCCULLOCH.—On Dec. 23th, at the Waterloo Hotel, Bettws-y-Coed, North Wales, L. B. McCulloch, F.R.C.S. Ed., aged 54 years.

NICHOLSON.—On Dec. 24th, at Farquhar-road, Upper Norwood, Surgeon-Lieutenant-Colonel Francis Cobham Nicholson, M.D., Indian Medical Service (Retired), aged 51.

WILKS.—On Dec. 22nd, at Stanbury, Torquay, George Augustus Frederick Wilks, M.D., aged 85.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Dec. 31st, 1896.

Date.	Barometer reduced to Sea Level and 32° F	Direction of Wind.	Dry Bulb	Wet Bulb.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Rainfall.	Remarks at 8.30 A.M.
Dec. 25	30·08	W.	42	40	62	49	35	...	Fine
,, 26	30·31	W.	47	46	53	53	41	0·14	Cloudy
,, 27	30·29	N.W.	46	45	65	49	44	0·13	Fine
,, 28	29·92	S.W.	45	44	58	52	43	0·15	Raining
,, 29	30·32	N.W.	38	37	49	44	37	...	Foggy
,, 30	30·07	S.W.	49	48	56	53	38	0·06	Overcast
,, 31	30·02	W.	47	46	65	50	46	...	Cloudy

Notes, Short Comments, and Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index for the half-year ending Dec. 26th was given in last week's issue, which completed the second volume for the year 1896. The practice of supplying loose copies has been discontinued, the Index having been placed in the centre of the journal, whence it can easily be detached, and placed either at the beginning or at the end of the volume.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1896 will be ready shortly. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.* (Local bookbinders will charge about 1*s.* for binding the numbers in these cases.)

To be obtained on application to the Manager, accompanied by remittance.

"HOSPITAL REFORM."

MR. R. HILL SHAW, M.B. Dub., writes us a letter, for which we regret we cannot find room, on hospital reform. He observes: "We wage war not against charity but against the meanness of a large section of the public who 'sponge' on the kindly aid which is voluntarily and charitably contributed to help in sickness the deserving poor and needy man's misfortune, and who take an undue advantage of the want of unity and of greater independence throughout the medical profession in general, and in particular of the lack of a broad sympathy and of a wider unselfishness on the part of its members one towards another." Dr. Shaw has in these passages hit on the two parts of the explanation of the evils from which the profession is suffering. He will see that we have pointed this moral in our editorial columns.

W. J. L. G.—(1) A review of the book will appear shortly. (2) "Medical and Surgical Diseases of Children," by Ashby and Wright (Longmans), third edition, 1896, price 24*s.*

QUACKERY.

WE commented in THE LANCET of Dec. 19th upon the publications of the worst sort of quacks. The following letters are examples of another kind; they are not obscene or canting, but are nevertheless to be condemned. Letter No. 1 is from the patient to his proper physician. Letters 2, 3, and 4 are from the quack. The patient, we may add, had been treated at Brompton Hospital.

Letter No. 1.]

"DEAR SIR,—Pardon me for not having answered your kind note of October 13th before, but I have been very queer indeed since I have been here, otherwise I should have answered it before. I thank you very much for same and for your advice as to placing myself under a doctor here, but I am sorry to say they are very expensive here and I cannot afford the money as I have a young family. I am at present taking Owbridge's Lung Tonic, although it does not seem to benefit me much. I have taken two bottles.

"I answered an advertisement in the newspaper (enclosed) and the circulars I enclose are the result. I shall esteem it a very great kindness if you will give me your advice as to whether you think it would be any use placing myself under the treatment, as you know exactly how my health is and if it is likely to be of any standing benefit to me. The reason I trouble you is because I am not in a position to throw £2 2*s.* away if it would not do me any good, and thinking you may know something about this cure I venture to ask your advice on same.

"Thanking you, Sir, for an early reply and apologising for troubling you, "I am, Sirs, yours obediently,

"—— ——."

Letter No. 2.]

"Specialist Pulmonary Institute Dir. Paul Weidhaas, Proprietor of the Institute for the Cure of Asthma and Pulmonary Diseases, Nieder Wessnitz, near Dresden, Germany.

"Oct. 29, 1896.

"Your inquiry concerning my treatment to for asthma to hand I thank you for your confidence and will try to justify it every respect. The instigation to introduce my cure in proceeded from Professor Dr. Sawyer in Brighton, whose son I cured from a long standing suffering of asthma, after change of climate and all other cures had been unsuccessful and the disease threatened to develop into consumption. I have used my cure in thousands of difficult cases with complete and lasting success, not merely ephemeral. It can be followed without interference of the daily occupations and at home; and consists besides prescriptions of a physiatric nature in the employment of an instrument for atomisatrie, by the use of which the vessels of the lungs charged with blood are contracted and emptied; and further of a specially composed tea of special and excellent general effect. The results are as already mentioned lasting for I do not only try to conquer the particular symptoms of the disease as is usually the case in other treatments but I strive to remove the causes this is proved by my wonderful results which I have attained by patients who had been given up as incurable. The total fees including instrument, information and the direction of the cure amount to 2 guineas, no matter whether you claim my advice for only a short or a longer time. One half of the fee is due at the beginning the other half at the completion of the cure. The only other expenses are at the beginning of the cure 3*d.* per day for the tea.

"Yours faithfully

"Specialist

"Pulmonary Institute

"Dir. PAUL WEIDHAAS."

Letter No. 3.]

"DEAR SIR,—Enclosed I send you a list of questions which you will please fill out, the answers of which will determine more securely the position of the diagnosis and the fixing of the necessary correct directions, than a personal physical examination, by which very frequently all sorts of errors occur.

"After receipt of the list thus filled out, and half the cure-fees, I will send you at once all you require for the cure, and would ask you to report to me progress of recovery, so as to enable me to make the analogous further arrangements. "Yours truly,

"PAUL WEIDHAAS."

Letter No. 4.] "Nov. 7.

"DEAR SIR,—Though your sufferings are as you know your self, not to be called slight it is to be recommended to make a last trial I can tell you to your satisfaction that I have cured many who were at death's door. In consideration of your present position I am willing to meet you as to the fees, what do you say to ½ a guinea for the first instalment? For the rest I would give you time to pay when it suits you as my chief aim is to effect a cure. If you agree to these terms I will send you everything you require for the cure.

"Yours faithfully,

"PAUL WEIDERHAAS."

Letter No. 3 is particularly interesting as an example of illogical reasoning.

H. E. T.—No standard work has come under our notice upon this extremely limited subject. We recommend our correspondent to consult two or three standard works of anatomy and physiology and some good manual of dental surgery and mechanics.

RECOVERY OF MEDICAL CHARGES.

AT Clerkenwell County Court a few days ago Mr. Charles Jeffrey Morgan, L.R.C.P. and L.M. Edin., M.R.C.S. Eng., 546, Caledonian-road, sued Mr. Charles R. Townley, clerk, of 9, Richmond-place, Russell-road, Holloway, for £13 4s. for professional attendance and medicines in the autumn of 1895. The patients attended were three children of the defendant suffering from diphtheria, two of whom died, the defendant's wife, who also suffered from that disease, and himself for sore-throat. The services included a tracheotomy and the administration of antitoxin. The charge was at the rate of 2s. 6d. a visit with medicine. When the account was sent in a reduction was asked for and the plaintiff agreed to take off £1, whereupon the defendant brought a charge of negligence and the plaintiff naturally refused to make any reduction. This charge was reiterated in court, but withdrawn by Mr. Randall Moore, the defendant's solicitor. The jury found for the plaintiff for £7 10s. over and above £1 10s. paid into court by defendant. We regret this reduction of charge, but the defendant will get little satisfaction from the rider of the jury or the just remarks of the judge. The jury expressed regret that a charge of incompetency had been brought against the plaintiff, and the judge said he "had a strong opinion about the case. He had some experience of illness in the household and knew how much doctors were in the habit of doing for their patients and how little they charged." The reduction in the bill by the jury was clearly due to the appeal *ad misericordiam* of the defendant, who said he had only £2 10s. a week.

"DISINFECTION OF BOOKS AFTER SCARLET FEVER."

To the Editors of THE LANCET.

SIRS,—In reply to "A. B. S." books must be disinfected by hot (moist) air; steam will entirely destroy the leather binding and sulphuring is not reliable. I would advise "A. B. S." to get the disinfection done by some skilled person—such as Mr. W. C. Lacy, Town Mead Wharf, Wandsworth Bridge, Fulham, S.W.—and damage will be less likely to occur. I am, Sirs, yours truly,

Dec. 23rd, 1896. J. GAY.

IN RE "DR. WILLIAM BEDELL BENISON, DECEASED."

THE *Birmingham Daily Mail* has an advertisement in regard to the course to be taken by persons having claims on the estate of the above gentleman, deceased, in which is curiously and prominently announced the fact that "Dr. Harris, L.R.C.P., &c., &c., who attended the late Dr. Benison in his illness and has since conducted his practice, will continue Dr. Benison's practice at Valentine-road, King's Heath, for the present." Such an announcement would have been better made by circular to individual patients and with strict adherence to proper titles.

X. Y. Z.—One tabloid night and morning is not an excessive dose. It is too early in the history of the preparation to speak with any certainty from a clinical standpoint; but we publish an analytical note upon it this week.

INSANITY AND TUBERCULOSIS AMONG NEGROES.

"PREVIOUSLY to the abolition of slavery," writes a correspondent, "there was very little tuberculosis or insanity in America amongst the negroes of the Southern States, who were observed to enjoy a remarkable immunity from both affections. After emancipation they appeared to quickly lose this immunity, and at the present time are exceedingly susceptible to both. Formerly, although in a state of slavery, they are said to have been well cared for, compelled to lead orderly, regular lives, and kept from dissipation and excess. Freedom removed these restraints, and they quickly plunged into riotous and vicious habits. A physician who has investigated the subject writes in a transatlantic contemporary that "the rapid increase of insanity and consumption in this race is due to a combination of causes and conditions. They have developed a highly insane, consumptive, syphilitic, and alcoholic constitution which predisposes them to diseases they were formerly free from. In this disturbed and unstable condition they seem to be totally unable to resist the slightest excitement. Recent mortality returns show that the death-rate of the coloured people from tuberculosis is three times as high as that of the whites."

R. N.—Mr. ——, Fleet-Surgeon, R.N., appears to us to be the preferable style.

"SERIOUS CHARGE AGAINST A MEDICAL MAN."

WE have before now had to protest against the misuse of this title in connexion with paragraphs in the lay press. It is constantly employed when the person charged has no legal claim whatever to the position of a "medical man." In the case of the individual arrested at Devonport just before Christmas we have been unable to find the name of Edwin Alfred Cormack upon the Medical Register, while we cannot ascertain that anyone of this name has been removed from the official list.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (4th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M., Ophthalmic 1.15 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), St. Mark's (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.).

TUESDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (2 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.).

WEDNESDAY (6th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.).

THURSDAY (7th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.)

FRIDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.).

SATURDAY (9th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Cancer (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY (5th).—PATHOLOGICAL SOCIETY OF LONDON.—8.30 P.M. Papers:—Dr. A. A. Kanthack and Mr. T. W. Connell: Some Points in the Morphology of the Tetanus Bacillus.—Dr. D. Drew: Villous Papilloma of the Kidney, Ureter, and Bladder.—Mr. J. R. Lunn: (1) Excision of Knee Joint; (2) Femur which had been Trephined; (3) Duct Carcinoma (?) in a Man aged ninety one years. Card Specimens: Dr. Parkes Weber: Cardiac Thrombosis.—Dr. Th. Fisher: Broncho-pneumonia with Dilated Tube in Child aged five years.

WEDNESDAY (6th).—OBSTETRICAL SOCIETY OF LONDON.—8 P.M. Specimens will be shown by Dr. C. H. Roberts, Dr. A. Routh and others. Dr. Macnaughton Jones: Note on a Case of Eclampsia. Papers:—Dr. W. S. A. Griffiths and Dr. A. W. W. Lea: On Breech Presentation with Extended Legs.—Dr. Giles: The Cyclical, or Wave, Theory of Menstruation, with observations on the Variations in Pulse and Temperature in relation to Menstruation.

FRIDAY (8th).—CLINICAL SOCIETY OF LONDON.—8.30 P.M. Mr. R. Brudenell Carter: Case of Gunshot Wound of the Eye.—Dr. W. P. Herringham: A Case of Paroxysmal Tachycardia in a Girl aged thirteen years.—Mr. C. S. Wallace: A Case of Fracture of the Axis.—Mr. J. E. Lane: Two Cases of Gastro-enterostomy illustrating the use of Murphy's Button.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FRIDAY (8th).—NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Bloomsbury).—3.30 P.M. Dr. James Taylor: Electrical Testing and Treatment.

During the week marked copies of the following newspapers have been received:—*Worcester Herald, Hull Times, Daily Mail, Bolton Chronicle, Manchester Guardian, Rocket, Glasgow Evening News, Leicester Post, Dundee Advertiser, Admiralty and Horse Guards Gazette, Birmingham Argus, Sheffield Telegraph, South Wales Daily News, Times of India, Pioneer Mail, Newbury Weekly News, Hereford Times, Leeds Mercury, Forfar Herald, Midland Free Press, Eastbourne Chronicle, Gravesend Standard, Sussex Daily News, Bucks Herald, Liverpool Daily Post, Gray's Standard, Colchester Gazette, Northampton Mercury, Portsmouth Times, Yorkshire Post, Halifax Courier, Whitehall Review, Liverpool Courier, Oldham Standard, Lincoln Gazette, Sheffield Independent, Keene's Bath Journal, Somerset County Herald, Essex Telegraph, Architect, Bristol Mercury, Chatham News, Builder, Scotsman, Grocers' Journal, Newcastle Journal, South Eastern Gazette, East Anglian Weekly Times, Royal Cornwall Gazette, Grimsby Observer, Folkestone Express, Launceston Weekly News, Wakefield Express, Surrey Comet, Reading Mercury, Birmingham Daily Post, Sanitary Record, West Middlesex Herald, Surrey Advertiser, Mining Journal, Brighton Gazette, Local Government Journal, City Press, Hertfordshire Mercury, Le Courrier de la Presse, Local Government Chronicle, The Australasian Medical Gazette, Evening Express, Liverpool Daily Telegraph, The Stock Exchange, Educational Times, Luton Reporter, &c., &c.*

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